B+Z ✓

Gleanings in Bee Culture

May 1954

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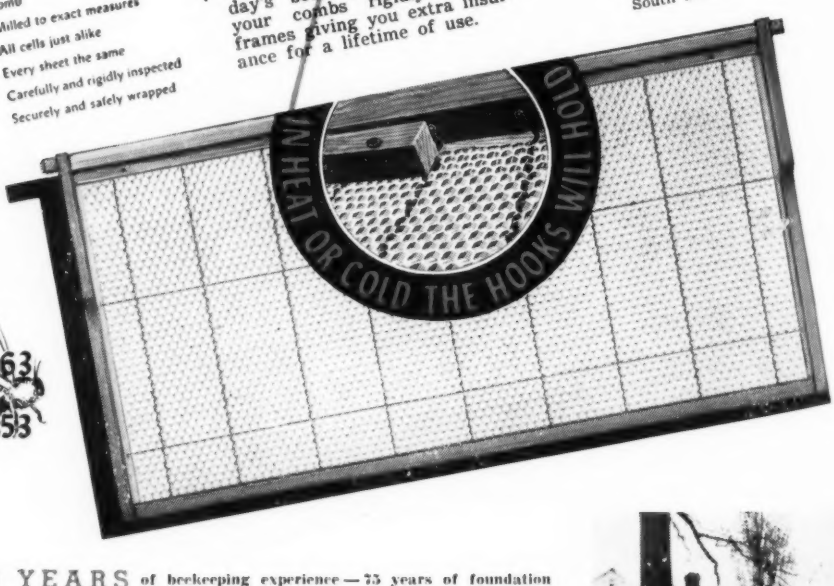
Aberdeen
South Dakota



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Gleanings in Bee Culture

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Subscription Rates: United States, Canada, Pan American countries, and Spain, one year, $2.00; two years for $3.50; three years for $5.00. Single copy, 20c. Other countries, 50c per year additional for postage. Discontinuance: Subscription stopped on expiration. No subscriber will be run into debt by us for this journal. Change of Address: Give your old address as well as the new and write the name to which the journal has heretofore been addressed. Remittance should be sent by post office money order, bank draft, express money order, or check. Contributions to Gleanings columns solicited; stamps should be enclosed to insure return of manuscript to author if not printed. Advertising Rates: Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. Advertisers' Reliability: While the publishers do not guarantee advertisements in this journal, they use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.

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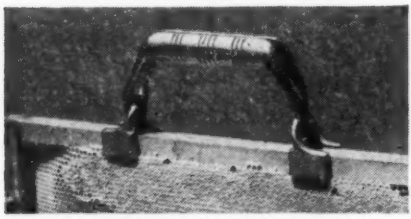

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Monthly HONEY Report

United State Market—Average Prices for Last Six Months

May 1954

Average honey prices received by beekeepers during the last six months, based on reports that appeared on this page during that period. The first figure represents the lowest price, the center figure indicates the average, while the last figure shows the high for the six month period. All prices are based on reports from beekeepers and packers in the regions mentioned. Where only two figures are used the low and high are shown.

	North & South Atlantic	South Central	North Central	Midwest	West
Bulk Honey:					
Table Grade	10¾-12½-16c	12-12½-16c	10-12-14c	10-12½-15c	10-12-17c
Baking Grade	9½-11-15	10-11-12	9-10-11	9-10½-12	8½-10-11½
Price to Grocers:					
5-lb. jar - can	13-21-29	17-23-30	16-19-21	16-18-21	16-19-22
2-lb. jar - 12's	20-22-30	20-25-22½	18½-22-32½	20-21-28	20½-23-27
1-lb. jar - 24's	21-25-32	22-26-30	20-24-30	21-24-30	22-24-27
Comb Honey: Cs. of 24 Sec.	$7.20-9-10.80	$9.60	$7.20-8-9.60	$6-7.50-9.80	$7.75-9.60
Retail Price:					
60-lb. can	15-17-22	15-16½-20	15-16½-22½	14-16-20	14-16-20
5-lb. jar	20-25½-40	20-25-32	19-23-33	19-23-26	20-25-30
2-lb. jar	22-34-40	30-32½-42	25-30-35	22½-27-34	22½-30-35
1-lb. jar	23-35-45	30-35-40	25-32-35	21-32-40	27-33-39
Honey Sales:	Fair	Fair	Fair	Fair to Good	Fair

Canadian Market

(Unless otherwise specified, all quotations are for cases of No. 1 White.)

HALIFAX: Mkt. steady.
N. B., Ont., past., paper.
24/2's $12.50
24/1's 6.50
SAINT JOHN: Mkt. steady.
Ont., past., glass,
24/16-oz. ..... $ 7.25
paper,
24/1's 6.10
24/2's 11.10
MONTREAL: Mkt. firm.
Que., White, metal,
24/2's $10.75-11.50
12/4's 10.50-11.00
glass,
24/8-oz. 4.25- 4.50
24-16-oz. 6.50- 6.75
Dark, metal,
24/2's 6.50- 6.75
OTTAWA: Mkt. steady.
Ont., past., paper
24/1's ..... $ 5.41- 5.80
metal,
24/2's 10.82-12.50
12/4's 11.65
Golden, metal,
12/4's 8.10- 8.50
Amber, metal,
12/4's 8.50- 9.75
Man., White, metal,
12/4's 11.75
TORONTO: Mkt. steady.
Ont., past., paper.
24/2's $10.25-11.00
metal,
24/2's 10.75-11.50
paper,
24/1's 5.45- 5.75
Amber, metal
24/2's 7.00- 7.50
unpast., metal,
24/2's 10.75-11.50
WINNIPEG: Mkt. steady.
Man., metal,
24/2's ..... $ 9.80
12/4's 9.30
past., paper,
48/1's 11.35
24/2's 10.50
REGINA: Mkt. steady to firm
Sask., metal,
12/4's ..... $ 9.75-10.00
past., paper,
48/1's 11.40-11.55
metal,
24/2's 11.20-11.35
12/4's 11.00-11.05
6/8's 10.85-10.95
SASKATOON: Mkt. steady.
Sask., metal,
24/2's $10.15-10.25
12/4's 9.50- 9.75
past. paper,
48/1's 11.40-11.50
metal,
24/2's 11.20-11.30
12/4's 10.85-11.00
EDMONTON: Mkt. steady.
Alta., metal,
12/4's ..... $ 9.00- 9.60
past., paper,
48/1's 10.85-11.30
24/2's 10.30-10.75
metal,
12/4's 9.52-10.35
liquid, glass,
12/12-oz. 2.93- 3.35
B. C. liquid, glass,
12/1's 4.45- 4.85
CALGARY: Mkt. steady.
Alta., metal,
12/4's ..... $ 9.25
6/8's 8.50- 8.75
past., paper.
48/1's 10.55-11.00
24/2's 10.55-10.75
metal,
12/4's 9.60
VANCOUVER: Mkt. steady.
Alta. past., carton,
24/1's ..... $ 5.65
24/2's 10.65
metal,
24/2's 11.20
12/4's 10.70
liquid, past., glass,
24/12-oz. 6.05

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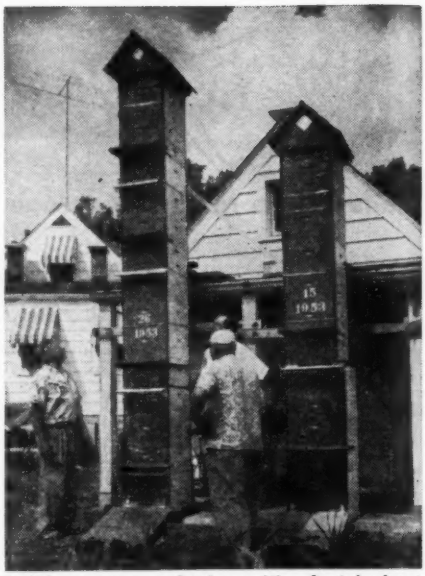

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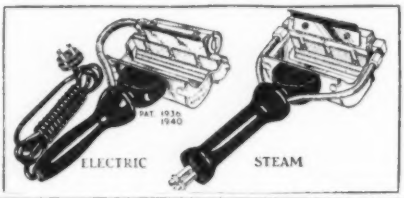
George Adelhardt, Libertyville, Ill.



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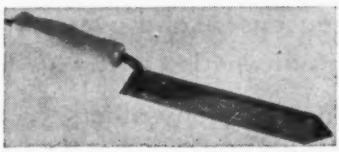

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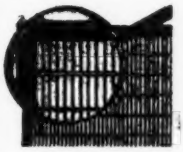

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Lots of	Queens	2-pound & queen	3-pound & queen	4-pound & queen	5-pound & queen
1 - 24	$1.15	$3.50	$4.40	$5.30	$6.20
25 - 99	1.05	3.25	4.10	4.95	5.80
100-499	.95	3.00	3.80	4.60	5.40

Tested Queens, $2.00 each

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Lots of	Queens	2-pound & queen	3-pound & queen	4-pound & queen	5-pound & queen
1 - 24	$ .75	$3.10	$4.00	$4.90	$5.80
25 - 99	.70	2.90	3.75	4.60	5.50
100-499	.65	2.70	3.50	4.30	5.10

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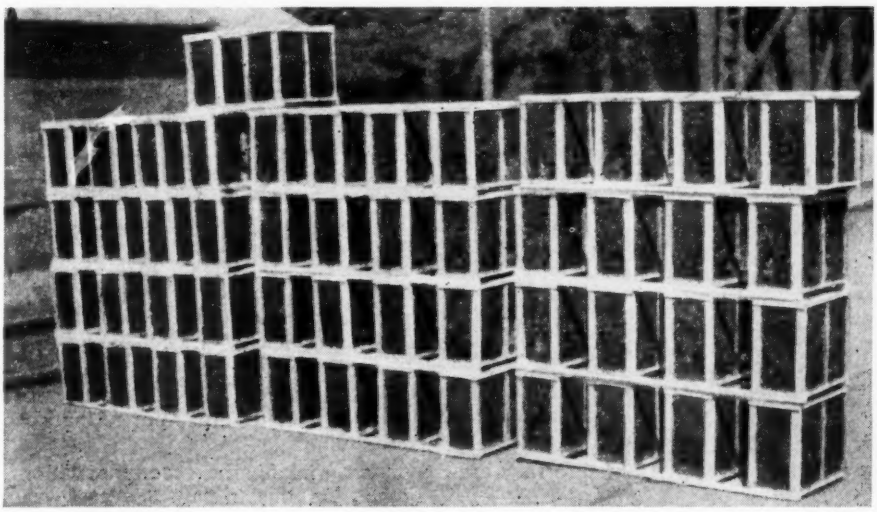
THE STOVER APIARIES
Mayhew, Miss.

Should package bee producers feed fumagillin?

by ROY S. WEAVER, SR., Weaver Apiaries, Navasota, Texas



A load of package bees ready for shipment. If these bees have Nosema, who should feed fumagillin, honey or package bee producer?—Photo by H. C. Short, Fitzpatrick, Ala.

THERE WAS A very interesting article by Dr. Farrar in the February issue of Gleanings, giving the results of an experiment with fumagillin for control of Nosema in package bees. To me there seems to be little in this experiment to justify the conclusions reached and recommendations made because of the results of this experiment.

One cooperator, there were seven, thought there was no difference in production, excepting in one yard. One thought the untreated colonies produced more honey than the treated ones, however he stated that there was drifting and the honey flow may have been better where the untreated apiaries were located.

It seems that there could have been drifting and differences in the honey flow in the apiaries of the other cooperators. One saw no difference in the build-up of the treated and untreated colonies.

Colonies in the apiaries that were slow on build-up seem to have been strengthened by giving brood and bees from stronger colonies. From reading the article one concludes that this was done with no regard to which colonies were being fed fumagillin and which were not being fed. The reports of a gain in production are only a guess. None, as far as I can see by reading the article, of these packages was produced from colonies being fed fumagillin.

Maybe Dr. Farrar reached the conclusion because of other experiments that "for the production of Nosema-free package bees each colony should be fed the equivalent of at least two 10-pound pails of fumagillin syrup during the four weeks prior to the shaking period." In another place he says "sufficient treated syrup is needed to supply the colony's principal food requirements for at least three weeks."

Of course, two 10-pound pails of

thick syrup will not nearly supply a good package producing colony with its food requirements for three weeks, and if two pails are fed over a period of four weeks there will be quite a long time when the bees are getting no fumagillin. There seems to be nothing in this experiment that could cause Farrar to reach these conclusions.

How Serious is Nosema?

Dr. Farrar makes the statement that Nosema is world wide and I am sure he is correct. I am also sure that not all apiaries are infested with Nosema all the time.

As a package bee producer our first thought was costs. Let's take a quick look. From figures taken from reports of the U. S. Department of Agriculture for the years 1944 through 1948, the average production of package bees from colonies run for package bee production was from a high of 5.7 pounds per colony to a low of 4.7 pounds per colony. Please keep in mind that this period covers the years when package bees were in the greatest demand in the history of the industry. I do not have the figures for the past few years; however, I am sure they are much less.

THE GROSS PRICE that shippers are now receiving for bees is 80 cents or less per pound. This is after deducting the costs of cages, cans and feed for shipping. This is a total of $4.00 per colony.

From the quotations of fumagillin we have received the costs of the fumagillin for two 10-pound pails of syrup would be about $1.20. Am sure that the feeders and care of feeders would be another 10 cents a colony and that giving two feedings and picking up and storing feeders would be at least 20 cents. This is a total of $1.50 a colony. This is also 37½ per cent of the gross received. If one adds the costs of 12 or 13 pounds of sugar, another $1.15 or more, the total is $2.65 per colony or 66¼ per cent of the average gross received.

Many of us believe that an abundance of honey on the colony is the best feed, and cheapest, if one wishes to produce package bees. Shall we pay high-priced labor to extract this poor-grade honey and throw it on the market and then pay again to feed sugar? No, I think the price of the sugar should be included in the costs.

As a producer of package bees the $64 question we would like answered is who is going to pay for all this? Should we feed fumagillin to package bee colonies?

After making the recommendations, Farrar has this to say: "Several years of experience in the use of fumagillin may be needed before a producer can guarantee Nosema-free package bees."

Even when, and if, that time comes, how long can the producer guarantee they will stay free?

Try a Hive Wheeler

by W. L. COGGSHALL, N. Y. Extension Apiarist

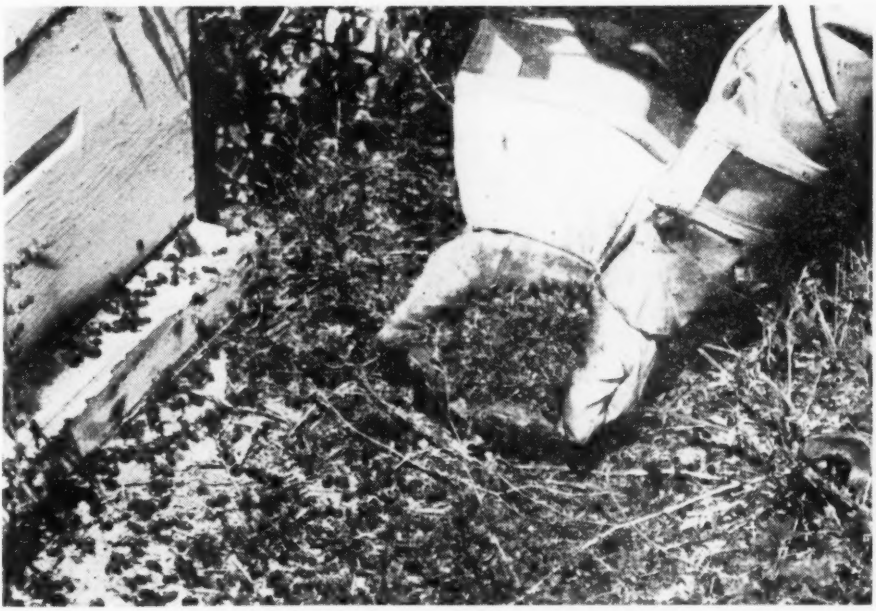
CARRYING two-story colonies is usually a job for two men. Here is a home-made hive wheeler which enables one man to move a heavy two-story colony about the apiary.

The wheeler shown consists of a simple framework which is lowered over the colony and clamped; the wheel lowers so that the hive is lifted above the ground in moving.

A simple bag truck equipped with bicycle wheels or a common wheelbarrow can be used, but either requires lifting the colony. Wheelers are especially satisfactory where a power tailgate is used. Bicycle wheels may be used, and the framework may be built mainly from scraps of metal.

Safeguard bees during orchard spraying

by **GEORGE F. KNOWLTON, Utah Agricultural College**



Bees killed by careless use of sprays.

BEEKEEPERS and orchardists should be concerned about the safety of honey bees and native wild bees which are so necessary as pollinators. This concern is growing with the increasing use of many potent insect control weapons.

Some of these promising new chemicals are parathion, TEPP, malathion, EPN, DDT, heptachlor, dieldrin, aldrin, lindane and benzene hexachloride. Risk to bees apparently is reduced when toxaphene, systox and certain of the new mite control chemicals are properly timed and are applied with efficient equipment. These new mite control chemicals include aramite, dimite, sulphenone and ovotran.

Of course, every reasonable care should be exercised when the organophosphate insecticides, most of the chlorinated hydrocarbons, lead arsenate, cryolite, and other highly poisonous agricultural chemicals are used. This is important in safeguarding the honeybee and native wild bee pollinators, which are essential to profitable commercial fruit production.

Destruction of honey bees by agricultural chemicals may raise rental charges and also make it more difficult to secure bees for use in orchard areas. Fruit growers will find it to their advantage to safeguard honey bees and native wild bee pollinators by the following methods:

(1) Cleaning up mites, scale insects and other over-wintered pests on tree fruits with a dormant or delayed dormant spray of lime sulfur, dormant oil or a combination lime sulfur-oil spray. This normally is applied at a time when little risk exists to bees.

(2) Avoiding, as far as possible, arsenic, parathion or other highly toxic insecticides in pre-blossom sprays.

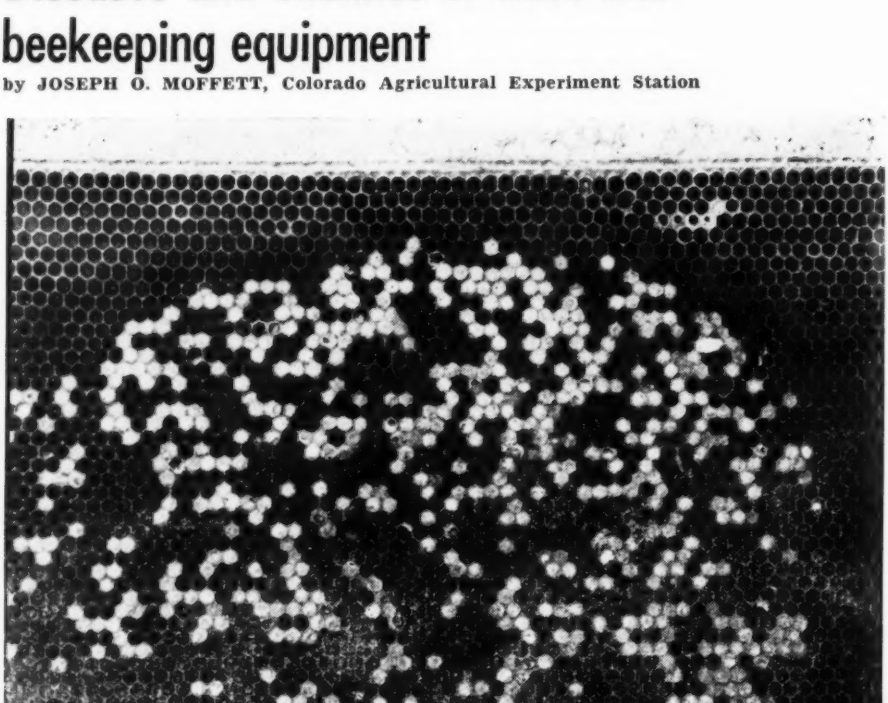
(3) Applying parathion, malathion, TEPP, EPN, DDT and similar sprays, when needed, **after** blossoms have fallen. Avoid use of poisonous sprays while blossoms are open.

(4) Properly **timing** all applications, and applying them at the correct dosage (consult your agricultural college for complete details). Make the fewest

(Continued on page 311)

Diseases and enemies of bees and beekeeping equipment

by JOSEPH O. MOFFETT, Colorado Agricultural Experiment Station



Whenever brood cappings are perforated, as shown above, be sure to examine the larvae for signs of disease.

Part I

BEES ARE SUBJECT to a wide variety of diseases and enemies. Fortunately, many of them cause only very slight loss or occur in restricted areas. Only the more common diseases and pests will be discussed here.

Major Brood Diseases

Brood diseases are those diseases that affect the larvae and pupae of the honey bee. A short description of the three most important brood diseases follows. If you think your bees have a brood disease, but are not certain send a sample of the diseased comb to the Intermountain Bee Culture Laboratory, Laramie, Wyoming, or to the Bee Culture Laboratory, Beltsville, Maryland. The sample should be at least four inches square.

American Foulbrood

This disease is caused by a spore-forming rod, **Bacillus larvae.** The spores of this organism may live for many years in honey or old combs and still cause disease when given to honey bees.

The appearance of larvae dead of American foulbrood is extremely uniform. The larvae die after the cells have been capped. The first outward sign of the disease will be sunken, discolored or perforated cappings. The color of the dead larva is coffee-brown. It lies level on the bottom of the cell. The larva gradually decompose and become darker in color. At this time the larva is ropy. The decaying larvae can be drawn out in a fine thread which is elastic and snaps back into the cell when broken. After the larva is completely decayed, a black scale

remains, which sticks to the bottom of the cell.

Pupae killed by American foulbrood decompose in the same manner as the larvae. Occasionally the tongue of the pupae will adhere to the top of the cell. This leaves a thread-like line from the top of the cell to the bottom of the cell. It is called a "tongue-line" and is a reliable sympton of American foulbrood. However, this tongue line is not always present.

Colonies having American foulbrood will get progressively worse until they die. Usually the colony dies out in the winter from lack of enough bees to maintain a high hive temperature. The disease is spread by bees robbing honey from colonies having American foulbrood, by using contaminated equipment, by bees feeding on honey from diseased colonies, and by careless beekeepers.

Treatment

The following steps should be taken after it has been determined a colony has American foulbrood. Dig a deep hole where there is no danger of fire. Kill the bees in the colony with calcium cyanide, then place the bees, frames, and combs in the hole and burn. Cover the ashes from the fire with at least one foot of dirt. The insides of the hive bodies, covers, and bottom boards must be thoroughly scorched. Honey or combs from diseased colonies should never be used, as they will spread the disease. Always clean the hive tool and hands after examining a diseased colony and before examining clean colonies.

European Foulbrood

European foulbrood is a very serious brood disease. The causative agent is a bacterium, probably **Bacillus pluton.** The disease is usually worse in the spring and early summer, and sometimes will disappear when a good honey flow occurs.

The appearance of the sick and dead larvae is variable. The majority of the larvae die coiled in the bottom of the cell, while others die before the time of sealing. A few die after the cell is sealed. The pupal stage is very rarely affected.

The affected larvae lose their plumpness and glistening white color. They soon become a grayish-white to a definite yellow color. The yellow color is a distinct characteristic of this disease, although it is not always present. The decaying larvae may be white, yellow, or brownish red in color.

The scales are usually easily removed and may be in almost any position in the cell. Larvae which die after the cell is sealed sometimes resemble larvae dead of American foulbrood. However, these larvae are much more irregular when dried down than the larvae dead of American foulbrood. When ropy, the ropiness is coarse and lumpy, while the ropiness of American foulbrood is thin, even, and elastic.

European foulbrood sometimes spreads very rapidly and often almost an entire apiary will be stricken in a few weeks. The course of original infection is often hard to determine.

Treatment for E. F. B.

Many antibiotics have been tested against European foulbrood in the past few years. Both streptomycin and terramycin have given promising control of this disease. The recommendations for their use are given here. Some of the other methods of helping reduce the loss suffered by EFB are listed.

1. Control of EFB after it has developed in the colony.

A TM-5 (trade name) dust has given good control of EFB. Equal amounts of TM-5 and powdered sugar were mixed well with a flour sifter. This mixture was dusted on top of the frames in all the hive bodies containing brood. Thirty grams were used per colony.

Four level tablespoons of the TM-5 powdered sugar mixture weighs approximately 34 grams. A five-pound honey jar with large holes in the lid makes a satisfactory duster for applying the TM-5. The colonies should be dusted at weekly intervals until they are free of European foulbrood. The TM-5, terramycin animal mix, contains five grams of terramycin per pound. It is used to add terramycin in trace amounts to animal feeds, and can be obtained from most feed mills which mix their own feeds.

Streptomycin and its dihydro form also will give good control of EFB diseased colonies. One-fifth of a gram of active streptomycin should be added to a five pound jar of sugar syrup, and this should be fed to the diseased colony. The colony should be fed at weekly intervals until it is clean. Two feedings will cure most cases of EFB. The streptomycin should be dissolved in a small amount of water before being placed in the syrup. It tends to lump if placed directly in the syrup.

2. Prevent EFB by feeding streptomycin or terramycin.

The amount of EFB appearing in normal apiaries had been greatly reduced by feeding either streptomycin or terracon 25 to entire apiaries. The feedings started three weeks before most of the EFB occurs in the area. A second feeding was given two weeks after the first feeding.

One-fifth of a gram of streptomycin was fed to every colony in one and two-thirds quarts of syrup at each feeding. Three grams of terracon 25 contains 25 grams of terramycin per pound. The commercial terramycin poultry formula put out by Charles Pfizer & Company can be used in place of terracon 25.

3. Prevent drifting as much as possible.

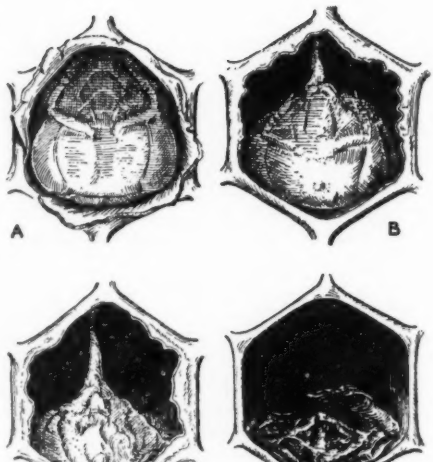
Drifting bees are a factor in the spread of EFB. Anything that can reduce drifting should help reduce the disease. Facing one hive entrance east and the next one south will help reduce drifting. Anything that breaks up the long even row of hives, such as trees, broken apiary patterns, etc., will also reduce drifting.

4. Kill weak badly diseased colonies.

Weak diseased colonies should be killed with Cyanogas and removed from the apiary. If possible this should be done at night. These weak colonies may be robbed. The robber bees may carry the disease organism back to their hives, thereby spreading the disease. If colonies are not cured of EFB with streptomycin or terramycin within a month, they should be killed.

5. Try to establish EFB resistant stock.

Never breed from queens whose progeny have had EFB. Colonies that have had EFB should be requeened if they have been cured by feeding an antibiotic. This will help prevent the perpetuating of an EFB susceptible strain of bees.



Stages in the decomposition of pupae dead of American foulbrood: A, B, C, heads of pupae showing progressive stages of melting down and decay. In B and C the tongues show prominently. D, scale of American foulbrood formed from the drying down of a diseased pupa. E, scale of American foulbrood formed from the drying down of a diseased pupa with a vestige of the tongue adhering to the roof of the cell.—From Government Bulletin, Department of Agriculture, No. 1713.

6. Melt EFB combs.

Brood combs containing EFB scales will often cause the disease one year after they have been removed from the colony. Many beekeepers melt and render these combs for wax, and place new comb foundation in the frames. This is probably a good practice.

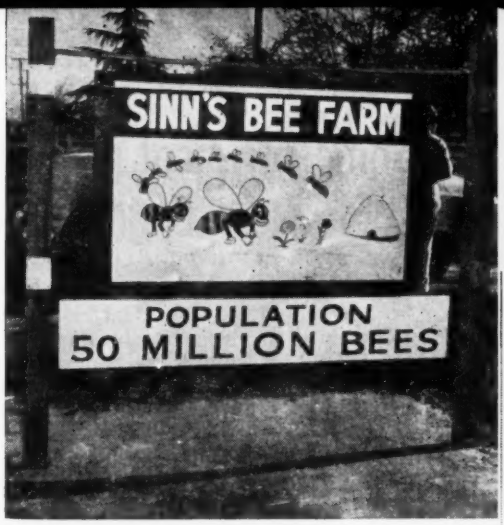
Sacbrood

This disease is caused by a filterable virus. Sacbrood seldom kills a colony, but occasionally a colony is seriously weakened by this disease. Death of the larvae occurs after the cells have been capped. The cappings of the cells con-

(Continued on page 316)

Better driveways to your roadside stand

by JAMES W. SPENCER, Agricultural Engineer, Cornell University



Roadside honey sign of Donald Sinn, Porterville, California.—Photo sent by J. E. Eckert.

BEEKEEPERS CAN APPLY some of the ideas highway engineers use in building roads to improve the driveways to their honey houses or roadside honey stands. And this is the time to check those driveways and put them in good repair for the busy months ahead.

There are five aspects of the driveway that every beekeeper should check: The driveway entrance, alignment and width, stability of the roadbed, quality of materials, and drainage.

You should be able to see at least 350 feet in each direction at the entrance of your driveway for this is the distance required to stop a car at 50 m.p.h. And be sure to keep any plantings at the entrance very low, even if it means moving your wife's pet spirea bush. It is also a good idea to slope, as much as possible, any banks on either side of the driveway. These precautions not only make for better sight distance, but also reduce drifting of snow over the driveway area.

The grade of the driveway at the entrance should not exceed five per cent, if possible, in a climate such as found in New York State. The possibility of a snow cover, and the erosion of unpaved surfaces makes a higher grade undesirable.

In judging your driveway for width and alignment, consider the kinds of vehicles that will use it. A driveway at least nine feet wide is required for passenger cars, 12 feet for straight trucks, and 14 feet for a tractor and semi. There should be an overhang of at least two feet on curves. Sharp curves, of course, are difficult or even impossible for trucks and semis to negotiate.

Stability of the roadbed, quality of materials, and drainage are three more points to consider in checking driveways and putting them in good order for the busy months ahead.

Since a bituminous surfacing job is quite expensive, many driveways have either gravel or plain dirt surfaces. The material used in a gravel driveway should include about 60 to 70 per cent gravel, 25 to 35 per cent sand, and 3 to 10 per cent silt and clay. The clay helps the mixture pack, shed water, and resist abrasion. Gravel in the top three or four inch layer should be about one inch in diameter.

To keep a smooth, dust-free surface on your gravel driveway, a stabilizing material such as calcium chloride or rock salt can be a big help. Calcium chloride gives best results if it is dragged into the surface to a depth of about three or four inches and then topped with a surface application. You will need about a half pound per square yard for every inch of depth. Each year, about one pound per square yard should be applied to the surface to replenish the natural loss.

When rock salt is used as a stabilizer, about three-quarter pound per square yard per inch of depth should be dragged into the top to a depth of three or four inches. Rock salt is also useful as an anti-frost agent when applied to the soil before the gravel is laid in

(Continued on page 310)

Some physical properties of some New England honeys

by F. R. SHAW, W. CROWELL, and M. SAVOS, University of Mass.

DURING A COURSE in advanced beekeeping at the University of Massachusetts it was possible to secure a number of samples of honey from New England. A study was made of some of their physical properties. Admittedly the data is somewhat incomplete since it would have been better to have used a greater number of samples. The data we are presenting is that found from samples of honey predominantly of the source indicated.

The moisture determinations were made with a B & L Hand Refractometer. The color determinations were made by a standard Pfund grader and the pH determinations by a Beckman Model G. Meter. In general the determinations for pH appear slightly higher than those reported by some other investigators including Vansell, 1929.

Our data appears in the following table:

Predominant source	pH	per cent Moisture	Wt. per Gal.	Pfund reading in mm.	Color
Basswood	3.6	18.3	11 lb. 12.25 oz.	57	light amber
Buckwheat	3.65	18.2	11 lb. 12.3 oz.	124	dark
Wild Cherry	3.9	17.5	11 lb. 12.9 oz.	93	amber
Clethra	3.65	16.4	11 lb. 14 oz.	25	white
Clover	3.55	16.8	11 lb. 13.6 oz.	16	extra white
Cranberry	3.9	17.5	11 lb. 12.9 oz.	72	light amber
Fall Flower	4.0	17.6	11 lb. 12.8 oz.	98	amber
Goldenrod	3.55	18.5	11 lb. 12 oz.	28	white
Fruit Bloom	3.7	17	11 lb. 13.3 oz.	45	extra lt. amber
Honeydew	3.7	17.2	11 lb. 13.2 oz.	140 plus	dark
Black Locust	3.55	16.8	11 lb. 13.6 oz.	46	extra lt. amber
Purple Loosestrife	3.7	20	11 lb. 10.75 oz.	88	amber
Raspberry	3.65	18	11 lb. 12.5 oz.	26	white
Sumac	3.65	18.6	11 lb. 12 oz.	38	extra lt. amber
Thyme	3.75	18.5	11 lb. 12.1 oz.	95	dark
Tulip Tree	3.7	18.7	11 lb. 11.9 oz.	135	dark
Unknown Bitter Honey	3.8	17.2	11 lb. 13 oz.	85	amber

The bitter honey of unknown origin was obtained in some quantity in eastern Massachusetts during the summer of 1953. Attempts to secure a positive identification of this honey have not been successful to date.

Facilities were not available to make actual determinations of the chemical composition of these honeys. Browne, 1908, Eckert and Allinger, 1939, have published data on the chemical properties of honey. White, 1954, in correspondence, also provided some data on the chemical composition of honeys. The table, opposite page is derived from the work of these men. The granulation tendencies were calculated using the formula of Dyce, 1931.

To those who are unfamiliar with the use and value of the granulation tendency it can be stated that this is an index of the probable rate of granulation. The smaller the actual value, the less rapidly will the honey granulate. Thus on the basis of the data of Browne, goldenrod would appear to be the least likely of the true honeys here studied to granulate. Wild cherry would appear to granulate most rapidly.

Summary

Some of the physical properties of 17 honeys from the New England area are presented. The pH of these ranged from 3.55 for goldenrod to 4.0 for fall flower. Pfund readings ranged from 16 mm. for clover to 140 plus for honeydew. Moisture content ranged between 16.4 per cent for clethra to 20 per cent for purple loosestrife.

In addition a table is presented based on the data of Browne, Eckert and Allinger and White of the Chemicals Compositions of some of these honeys. These data are based on honeys from the United States as a whole with those of Eckert and Allinger pertaining to honeys from California. The granulation tendencies have been calculated where the chemical composition of honey from similar sources was available.

It is hoped that the publication of

Composition of Honeys

Predominant source		Levulose	Dextrose	Water	Granulation Tendencies	Sucrose	Maltose	Other Sugars	Ash
Basswood	(1)	39.27	36.05	17.42	0.474	0.72			0.2
	(3)	37.06	33.04	18.04		1.51	6.84	2.13	
Buckwheat	(1)	40.29	36.75	18.54	0.451	0.03			0.09
	(3)	38.67	34.36	17.64		0.73	5.79	0.80	
Wild Cherry	(2)	39.10	36.20	17.27	0.484	2.56			0.30
Clover	(1)	40.24	34.96	17.64	0.430	1.77			0.07
ave.	(2)	41.65	35.82	15.8		1.40			0.75
	(3)	37.85	33.50	18.12		1.59	6.33	0.98	
Fall Flower	(1)	40.06	32.93	17.22	0.392	1.35			0.25
	(3)	37.86	33.82	18.00		1.15	6.16	0.80	
Fruit Bloom	(1)	43.62	32.78	15.82	0.388	2.66			0.03
Goldenrod	(1)	37.85	34.45	19.88	0.355	1.68			0.16
	(2)	39.20	34.21	17.40		1.37			0.37
Honeydew	(2)	37.50	27.20	15.72	0.306	3.45			0.77
Black Locust	(2)	41.50	34.18	18.01	0.389	0.78			0.22
Sumac	(1)	37.61	33.72	18.85	0.395	0.92			0.44
ave.	(2)	39.45	36.48	15.90		1.65			0.20
Raspberry	(1)	41.34	33.57	18.08	0.374	1.42			0.05
Tulip Tree	(1)	37.40	31.62	17.47	0.378	2.72			0.51

(1) Data of Browne
(2) Data of Eckert and Allenger
(3) Data of White

these data, admittedly preliminary may stimulate further interest and make possible a more thorough study of our New England honeys.

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1939. Physical and chemical properties of California honeys. Calif. Exp. Sta. Bul. 631:2-27.

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Apiary of E. H. Maxwell of Lexington, Tennessee. Mr. Maxwell, standing on the scale hive, has been keeping bees for 64 years.

Producing young bees and queens

by W. G. Le MAISTRE, Provincial Apiarist of Alberta, Canada

A three-frame nucleus.

IN VERY MANY cases it has been observed that queens reduce their brood production as the honey season tapers off in the fall. The result of this is that the majority of bees at that time are old. Their vitality and expectations of life are limited. They cannot be expected to survive the winter, with any reserve of strength left to do the arduous work of building up the colony the following spring.

A young queen, by August 1st, will produce new brood in the fall with the necessary young bees to winter and build up the colony the following spring. It is a simple matter to provide a young queen for a hive by following one of the methods outlined below.

Steps to raise young queens should be taken during the first week of July. Good queens are readily produced at that time.

The queens that have been heavy egg producers early in the year, such as those that come with packages, are often failures after being wintered. Wintered colonies that dwindle badly the following spring are generally those that were not requeened. Package queens and old queens therefore should be replaced by mid-August in colonies being wintered.

Nucleus Method of Producing a Young Queen

Equipment: Prepare a hive with a partition or division board, allowing enough space for three combs; or, use an old apple box giving it a small entrance and providing a temporary cover; or, make up a regular nucleus hive.

Procedure: (1) Select three combs from the brood nest of a good hive. Two of these combs should have emerging brood in them and plenty of young bees adhering to them. The third comb should have a patch of eggs and young brood and plenty of adhering young bees on it. Place them all together, with the young brood in the center, in the prepared nucleus hive. It is important, that pollen and honey be in the combs, placed in the nucleus. Place the nucleus at least ten feet away from the parent hive and face it in a different direction.

(2) Five days after preparing the nucleus, queen cells should be present in it. If they are not, the combs should be returned to the parent hive and a fresh start made. If they are present leave them alone.

The field bees, that were transferred to the nucleus on the combs, will return to the parent hive when they fly. If at this examination, only a few bees remain in it, some more young bees should be shaken into it off brood combs taken from the parent hive. A pound or two—enough bees to cover the brood on the combs of the nucleus —are sufficient.

(3) Three weeks after preparing the nucleus, assuming all goes well, a young queen should be laying eggs in it. If there is no sign of eggs within four weeks, misfortune has attended the attempt.

Note: A young queen can be pro-

duced more quickly in the nucleus, if it be possible to put a queen cell in it when preparing it.

A queen cell can be cut from any comb by cutting deeply enough so as not to injure it. Then pin it with a nail, or make a depression on one of the combs of the nucleus and press the cell gently onto it. Or, a comb containing queen cells can be used.

To Requeen: At any time when the new queen has established herself as a good producer of eggs, the queen of the parent hive may be killed and all the frames of the nucleus, with the young queen between two of its combs, can be quietly placed in the old brood-chamber, having made room for it by removing three combs from one side. This should be accomplished without using much smoke and as little disturbance of either the nucleus or the hive to be requeened, as possible.

The bees may fight a little at first, but not enough to matter.

Raising Brood Method of Producing a Young Queen

Equipment: A thin board, just large enough to cover a super and having a rim along its edges with a gap cut in this rim. This is called a honey board.

Procedure: (1) Open the hive and locate the queen, standing the comb on which she is found to one side.

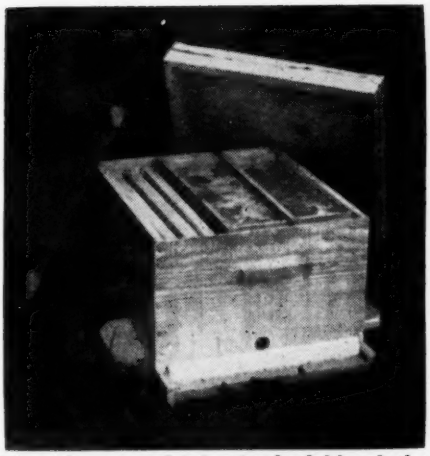
(2) Prepare a new brood chamber having some combs with pollen and honey and four or five combs with brood in them. Some of the brood must be very young or just eggs. Do not shake off any of the young adhering bees. Add enough empty combs to fill up this brood chamber. It should have two or three pounds of bees in it.

(3) Put the queen back in the old brood chamber, and place the supers back on the hive.

(4) Now put the honey board over the top super, having the gap in the rim to the rear, and the newly prepared brood chamber above the honey board. The gap in the rim makes an upper entrance for it, but to the rear of the hive.

(5) In three weeks a young queen will usually be found laying eggs in this upper brood chamber.

Note: This upper brood chamber can be left as it is, to build up into a strong colony and fill up with honey. This upper brood chamber sometimes requires a super placed above it to prevent over-crowding.



Three-frame nuclei in standard hive body with bee-tight partitions.

When "Demareeing" a hive, the brood that is raised above the supers can be placed above the honey board to rear a queen. A selected queen cell can be given instead of allowing the bees to produce their own.

To Requeen: In the fall, when supers are removed, this upper brood-chamber can be united with the lower by removing the supers and the honey board and placing the upper brood chamber directly on top of the lower.

In nearly all cases the queen in the lower brood chamber will be killed. Requeening is thus accomplished without the necessity of looking for and killing the old queen. Furthermore, a double brood chamber is automatically provided for the hive being wintered.

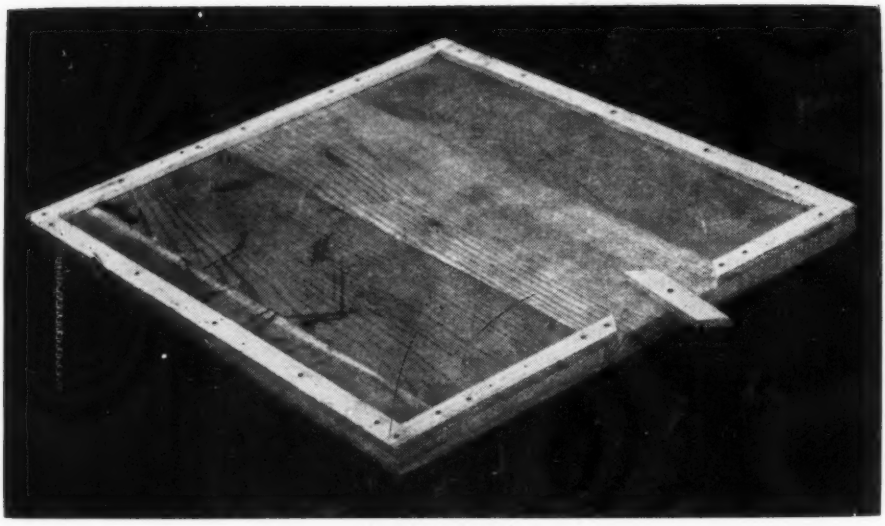
Killing Old Queen—Method of Producing a Young Queen

Procedure: Find the queen in the colony to be requeened the first or second week of July and kill her.

The bees, on discovering their queenlessness, will raise another for themselves. Though it would be much better to give them a queen cell from another hive if one were available.

Note: This method has some disadvantages.

(a) Unless a queen cell from a selected colony is available to introduce at the time of killing the queen, no



A honey board.

particular improvement of stock can be anticipated.

(b) Should the colony be inclined to swarming it may do so when one of the virgins, which they will produce, emerges.

(c) Should some accident occur to the virgin thus produced, the hive becomes hopelessly queenless and will develop laying workers.

It Won't Go Out!

by CHARLES J. KOOVER, Altadena, California

HOW OFTEN have you reached for your smoker and found it had gone out because you did not work the bellows every so often? Or the fire had died down so much that you had to work the bellows vigorously before it would pour out sufficient smoke again?

After years of this sort of annoyance I have finally solved the problem.

Hot air rises, cold air from below takes its place. But the cold air does not seem to enter freely through the blast tube under the grate unless the bellows is worked. How to get enough air to come in below the grate was the question.

When I punched some small holes in the bottom of the smoker I found the answer. The smoker once lighted will burn slowly for hours, yet when the bellows is squeezed it immediately will pour out smoke. It's the constant supply of oxygen that keeps the fuel smoldering without having to work the bellows until finally it will burn itself out, leaving some white ashes.

Here is how to fix your own smoker. Turn it upside down. Lay a quarter in the center of the bottom. Draw a line around it. Now mark that circle in eight places evenly divided. With a hammer and ice pick gently punch eight holes. Make them small, they can always be enlarged. Load up your smoker and enjoy a smoke as you never have enjoyed one before.

If you feel afraid of spoiling your smoker by punching these holes, a few drops of solder will close them again. But you never will.

Comb honey production can fit into your program

by **ROBERT M. MEAD, Apiary Inspector, White River Jct., Vt.**

THE ONLY THING that can stop a man from producing comb honey is lack of a honey flow for there is nothing difficult about comb honey production.

Of course, lack of a honey flow fouls up any kind of honey production but you can get a super or two of extracted even if the season is poor or if you are in an indifferent location where the honey comes in in dabs and drizzles. Not so with comb, as to get nice comb honey a location is needed where swarms make substantial gains day after day for at least a month.

When you are trying to make a crop, a month goes by awful quick and most of us are much happier if we have six weeks to two months of at least a passable honey flow.

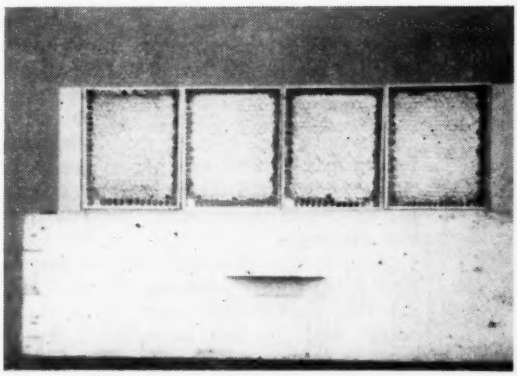
Of course, the other requirement for making comb honey is that you have a good fundamental understanding of what makes a producing colony.

Naturally, every beekeeper is supposed to know bees but from what I see when I go around doing inspection work I sometimes wonder. I have seen three comb honey supers perched hopefully on top of six combs of bees and the beekeeper cussing the weather and the flowers when he should have been cussing himself.

The standard ten-frame hive full of bees may be enough under some favorable circumstances and I know that a lot of honey is produced on that basis. However, I don't believe that one story is enough.

How to Produce Comb Honey

To produce comb honey, or any honey for that matter, we really start the fall before with a strong colony that has a young queen or at least a good queen, an abundance of stores, and at least a story and a half of room. The standard body with a shallow super food chamber is good but the longer I keep bees the better I like two full-depth bodies. Or if it comes handy that way a standard and two shallows.



Four average sections from last year's crop.

I don't know just why but it took me 20 years and it takes others plenty long enough to learn that the extra room and extra stores of honey are not wasted. All that happens is that by the time we unpack or unwrap in the spring the big hive has a boiling big swarm of bees whereas the little hive (one full-depth body) has a much smaller swarm.

Some may argue that you don't need a big swarm so early in the season but I still like them. For one thing if you want to make increase you can steal a few bees and some brood from the big swarm but if you take anything from the small one you are licked.

OF COURSE these big swarms will build queen cells early in the season if they feel crowded. However, as soon as we get a few warm days in late April or early May I go around and unpack them and pull the entrance sticks. This usually cools off any tendency towards early swarming but if any of them show the least need of it I put on another shallow super.

This extra room is very important and **it is better to give it ten days early than one day late.**

Simultaneously, if the weather permits I go through each swarm, clip those queens that need clipping and note the general health and welfare of the colony. This early season inspec-

tion does a lot of good in many ways. Occasionally a colony loses its queen over winter and this can be corrected if found early enough.

There are so many little details in beekeeping that are important but that we often overlook. For instance, if you have any number of swarms in outyards it is the handiest thing in the world to have a dozen extra queens with you in the truck when you go around. I have never requeened at any certain time of year simply because I hate to kill a queen that seems to be doing well, but I do try to replace any failing queen immediately regardless of the season.

Also during this early season inspection I watch for disease. If all would do this they would save both themselves and the bee inspector a lot of trouble later on. The important thing is to **spot the "stuff"** and **do something about it** before the disease gets a real foothold in the yard.

Nearing the Honey Flow

Let's consider that this brings us up to the beginning of the honey flow. We have mostly strong colonies, two or more stories high, and of course there will inevitably be a few weaklings. The way supering is handled from now on depends on what you want to produce.

If you go in entirely for comb honey excess bees and brood from your strong colonies can be used to build up the weaklings and each strong colony given two prepared comb honey supers to start off with. I think greater returns can be realized in most cases by producing some extracted and some comb.

I work a little each year for a 500-colony outfit that mixes things up still more and produces some comb, some cut comb, and some extracted, all with perfect success in a fair to medium season. The thing is, you have to use some judgement, have some idea of the production capacity of the colony you are supering, and have plenty of luck besides.

I have always found some colonies that hated to work in comb honey supers and others that did not make nice looking comb even if they did work them. As soon as these are detected they are shifted over to extracted honey production and often they produce fair crops of that.

On the average good colony, however, you do not need to follow any set rule. You can put on two extracting supers at the beginning of the season and if they are well filled ten days later (they can easily be in a good season) you can lift them up and slip in one or two comb honey supers. In fact, the way I swap supers around would give some beekeepers a nervous breakdown —but I make it work.

Some colonies always work better than others and give comb honey especially a better finish than others. Late in the season if you have comb honey supers on colonies that are not going to finish them take them off and give them to colonies that have demonstrated their superiority in finishing comb honey.

WHEN IT COMES to swarm control, I use a procedure of clipping queens and cutting queen cells. I don't claim that it is the best method and I advise anyone to follow the method best suited to their region.

The way it works here, is that the first trip around after the flow starts, I find a lot of cells to cut. The second trip around (I try to get around every ten days) I find less cells to cut, and by the third trip most of them will have given up swarming for the season.

Inspection for cells takes less than a minute per colony as the food chamber and supers are simply tipped back so that one can see if cells are hanging down from the bottom bars of the food chamber. Of course, if cells are present the colony has to be torn down and gone through frame by frame which takes time and occasionally by this method of inspecting for cells I may miss out on a colony that has a cell hidden somewhere and lose a swarm. However, in a summer over-crowded with work the loss of a swarm here and there is considered unimportant compared to speed in handling the whole yard.

Is Late Supering Possible?

Supering late in the season is always a major gamble. The question usually arises, "Will the honey flow continue or is it almost over?" During several seasons I have rushed around madly constructing extra supers and getting

them on only to find later that the honey flow ended about the day I got all this work accomplished.

A word of caution is also necessary for those who haven't had too much experience in supering, especially where both comb and extracted are produced on the same colony. The point is to **give room but not too much room.** If you don't give super room part of the crop is lost, and if you give too much you wind up with half-finished supers.

Of course, it is very important to detect, as early in the season as possible, those swarms that just won't work comb honey. If I was going in for comb honey exclusively I would certainly work up a larger stock of our native wild bees that seem to work sections much better than most strains of Italians.

Why Produce Comb Honey?

For no other reason, of course than to make an extra dollar if possible. Study your market. Everybody and his twin brother produces liquid honey but comb is an exclusive that some customers are willing to pay an extra price for, and if your locality does not call for section comb honey then consider cut comb produced in shallow frames.

At least one beekeeper I know never had much success in marketing his product until he began producing a percentage of comb honey.

Do Woodpeckers Peck Beehives?

by CHARLES LESHER, Mooreton, North Dakota

WOODPECKERS HAVE caused extensive damage to hives in beeyards located in the Red River Valley of North Dakota. They usually attack the hive at a hand hole, drilling through the hive wall and sometimes even through the first comb. Sometimes they peck through at the rabbet, splintering the wood as if a wood chisel were recklessly used. They also peck away at unused equipment standing in the yard.

This past year, after repairing several hundred hive bodies damaged by woodpeckers, we were vigilant in our watch for woodpeckers and the damage they cause. Surprisingly enough no new damage was noted until about November 1st. From November 1st until bees were packed about November 15th, woodpeckers attacked about ten per cent of the hive bodies in certain yards.

We have not caught woodpeckers in the act of damaging hives. The large flicker or red-headed woodpecker we believe had already migrated South and was not responsible. It has been suggested that a certain species of woodpeckers migrate down from Canada and are responsible for our trouble. Up to now our knowledge of the species and life habits of woodpeckers is practically nil. To help us solve this problem we are eager for any information involving the idiosyncrasies of woodpeckers.

We have learned that woodpeckers engage in a peculiar form of love making known as "drumming." Is that why they drill through our hives in November or are they actually after food? Does the buzz of the bee attract them?

Honey in candy manufacturing

by W. H. CHILDS, TECHNICAL EDITOR
The Manufacturing Confectioner, Chicago, Illinois

Dipping cherries in cream.—Photo by Manufacturing Confectioner.

Part IV

THE BASIC fondant recipe can be used with a variety of candies as given below.

Fondant

8 lbs. granulated sugar
12 ozs. strained honey
1 quart water

Place all of the ingredients in a pan and heat while stirring occasionally until the batch boils. Wipe the sides of the pan to remove sugar crystals which may form. Boil rapidly to 242-248 degrees F. Remove pan from fire and let stand on rack or in a larger pan containing cold water.

When the syrup has cooled below 110 degrees F., preferably to 100 degrees F., it may be beaten. An egg-beater, paddle, or electric mixer may be used. The product will turn white and become stiff. Knead by hand to obtain an ultra-smooth product. If preferred, the creaming or beating may be accomplished on the slab.

Marble or metal slabs may be used with four metal bars to keep the syrup confined. The metal or marble slab is lightly moistened before the cooled syrup is poured in a thin layer and beating may be done with a paddle. The kneaded, plastic fondant may be stored in a crock or covered container for months.

A little warm or cold honey may be spread over the bottom and sides of the storage container before filling with fondant. Also, a little honey may be spread over the surface of the fondant. These treatments tend to prevent surface drying or incrustation.

Fondant Wafers — Plain

Prepare fondant as in previous formula. Melt a weighed quantity of fondant over a water-bath (a double boiler is satisfactory). Stir while melting and do not over heat. A temperature of 120 degrees F. should not

destroy the crystal structure of the fondant.

Blend in measured amount of flavor: peppermint, wintergreen, spearmint, clove, cinnamon, or fruit flavor with a little color, as desired.

Place a layer of wax paper over the marble or metal slab. Warm the dropping funnel with hot water and shake or wipe dry. Insert the stick in the outlet of the funnel and pour the melted and flavored fondant into the funnel. Hold the filled funnel over the wax paper and starting at a corner, raise the stick to allow a little fondant to fall onto the paper. Move, lowering the stick, to the next spot on the paper, and repeat the operation. Speed in this task is acquired with practice.

When the fondant becomes too thick to flow, it may be returned to the melting pan.

The wafers set in a short time and may be loosened and turned to allow the under side to dry. When dried, the wafers may be packaged for sale.

An alternate method of forming the thin discs is to use a spoon. A table or dessert spoonful of the melted fondant, scraped on the edge of the pan to remove excess fondant, is held over the wax paper and the material allowed to flow onto the paper from the side of the spoon. When sufficient fondant has been deposited on the paper, the spoon is turned in the hand to stop the flow and avoid dribbles.

The thickness of the wafers depends upon the thickness of the fondant although room temperature is a contributing factor. In general, more uniformity in size and shape of discs or wafers may be attained by the funnel method.

Thinning Fondant

SLIGHTLY overcooked fondant or fondant which has become too dry may be thinned and re-worked by adding a little simple sugar syrup and kneading until it regains its desirable consistency. Simple syrup consists of three parts of sugar and two parts of water, warmed or heated to effect solution.

If the fondant consistency is too heavy for the making of wafers or dipping work, a little simple syrup added and well mixed with the melted fondant will do wonders. Never add water to dilute fondant!

Fondant Dipping

Prepared fondant as above.

Melt a quantity of fondant over a water-bath as for making Fondant Wafers. Avoid excessive stirring during the melting because the crystal structure may be altered: larger crystals are oftentimes the result of improper over-working.

Drop clean, dried pieces of cooked or canned fruit into the fondant and then remove with a dipping fork, and place on the sheet of wax paper. Fruits are sufficiently dry if drained in a sieve or strainer. Canned fruits for salad are ideal for dipping. Nuts may also be coated.

Better results are obtained if the fondant is flavored and colored to simulate the fruit. For example, if Maraschino cherries are dipped add a little Maraschino flavor to the fondant used and a touch of red color.

Cast Fondant Centers

Prepared fondant as above.

Metal trays or several shallow wooden trays are filled with finely sifted corn starch and levelled. Impressions in the starch may be formed by the use of corks or similar shaped devices.* Round holes of the desired size about one-half inch in diameter for the centers of candy may then be filled by either using the spoon or funnel method. These holes must be separated sufficiently so that nearby impressions are not distorted.

The fondant is flavored and colored prior to pouring. The choice of flavors is wide: coffee, fruit, maple, peppermint, spearmint, wintergreen, or others.

The centers may be removed from the impressions or molds after an hour or two. These may be picked out carefully by hand, and placed in a sieve. Shake the sieve gently to remove the excess starch.

Some people then place the centers between pieces of cheesecloth and holding the cloth by the corners, succeed in removing almost all of the starch without damaging the centers.

*Corks may be nailed about two inches apart, to a board. This board makes several impressions at once.

Brushing is the final resort to get rid of the last traces of starch.

These centers may be put aside for chocolate coating or may be dipped immediately in melted fondant, see Fondant Dipping, previous page.

Submerge the centers, one or two at a time until well-versed in the operation, and remove with a dipping fork. Place on sheet of wax paper. A small spoon assists in completely coating the centers and in transferring them to the fork. Hold above the paper and quickly rotate the fork so that the center slides off and lands upside down on the paper. Enough melted fondant will be on the fork to make a little flourish on the top. Technique has to be developed to produce bonbons of top-appearance.

Other Uses for Fondant

FONDANT MAY well be called the basic ingredient of candies. Although many candy makers do not use straight fondant for making centers because the centers in today's candies are very light in texture, still the fondant is fundamental.

Frappe, a combination of corn syrup, honey, invert sugar, egg products or vegetable proteins, beaten light is often added to fondant to create a light, airy cream which may be used for a center.

For the honey producer who does not care to enter the enticing candy field, an opportunity to enter the ranks of candy suppliers may present itself. Several supply firms market fondant, nougat creams, and similar prepared items to the general small candy manufacturer. Such an undertaking would involve a complete market survey (the canvassing of prospects) and likely mass production with such candy plant equipment as steam kettles, fondant cream beaters, or continuous fondant machines, and methods for handling large drums. Means for insuring uniformity of product would be essential.

Fondant may be used for the graining of fudge. Small candy concerns often prefer to save time by purchasing their supplies in a semi-finished state. It must be remembered, however, that several types of fondant may be used in the confectionery industry. An 80-20 or a 70-30 fondant (the first figure represents the pounds of granulated sugar and the second figure the pounds of corn syrup) are the two types of fondant which enjoy considerable usage today.

Cordial Cherries

Fruits and nuts are always popular candies and the cream cordial cherries have long been favorites of many people.

Part 1

5 lbs. fondant as prepared above.

Place this into a cold or slightly warm pan. Do not heat.

Part 2

3 lbs. 8 ozs. granulated sugar
4 ozs. honey
water to dissolve the sugar
¼ oz. invertase preparation

The sugar and honey are placed in a pan and brought to the boiling point. Wipe the sides of the kettle with a wet cloth attached to a stick and remove any crystals of sugar which may form. Cook the batch to 240-242 degrees F., and pour at once into the pan containing Part 1. Mix well. When the temperature has dropped to 155-160 degrees F., add the invertase solution and mix well. A little red color and Maraschino cherry flavor may be added, if desired.

The batch is ready to be cast into clean, starch molds which have been prepared as described under Cast Fondant Centers.

A small amount of the prepared cream is spooned or funneled into each starch impression. Then well-drained Maraschino cherries are placed on top of the cream in the impression. Finally, the impression is filled with the cream, covering the cherry. These centers are left in the starch until cooled and set, perhaps, an hour.

The cleaning or removal of adhering starch is done as described previously under Cast Fondant Centers. Then the centers are ready for chocolate dipping. The invertase causes inversion of the sugar present which creates the liquid center so well liked after a little aging period.

Light, Whipped Cream Centers

Part 1

5 lbs. fondant as prepared above.

Place this in a cold or slightly warm pan. Do not heat.

Part 2

2 lbs. 8 ozs. corn syrup
2 lbs. 8 ozs. honey or invert sugar
1½ ozs. egg albumen dissolved in 3 ozs. cold water

Cook the corn syrup to 245 degrees F. and remove the pan from the fire. Add the honey or invert sugar and stir. Place the batch in a beater, start beating, and gradually add the albumen solution. Beat until light.

Part 3

1 lb. 12 ozs. granulated sugar
12 ozs. honey or corn syrup
1 lb. 4 ozs. frappe (Part 2)
¼ teaspoon invertase preparation
Water to dissolve the granulated sugar
Color and flavor, as desired

Bring the sugar, corn syrup or honey to the boiling point. Wipe the sides of the kettle with a wet cloth attached to a stick and remove any crystals of sugar which may form. Cook the batch to 240 degrees F. Pour this part into the fondant (Part 1), mixing continuously. Add the frappe (Part 2), invertase, flavor, and color, and mix thoroughly.

When the finished batch is at a temperature of 145-150 degrees F., it may be cast into starch impressions as described previously (Cast Fondant Centers). When the centers have cooled and set, they may be cleaned of starch and then dipped in chocolate.

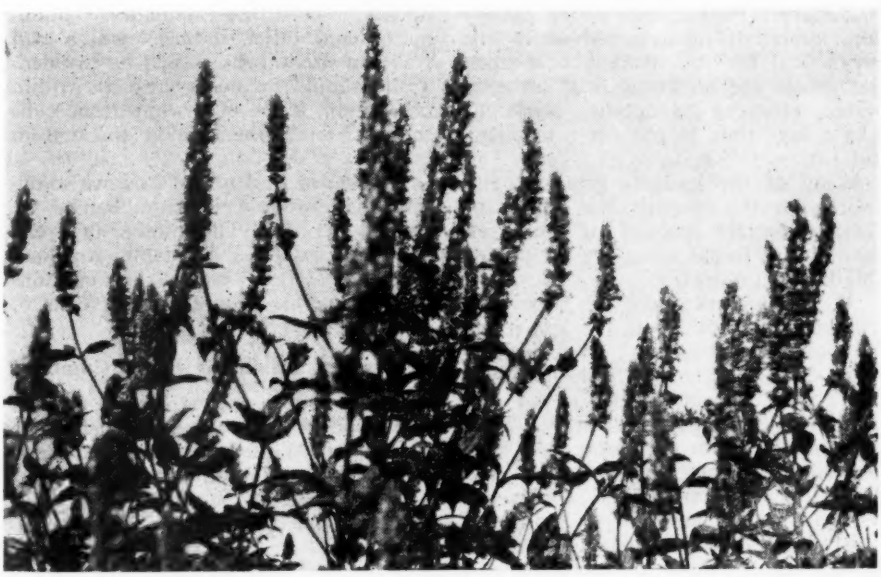
Hand Roll Cream Centers

Referring to Light, Whipped Cream Centers, modify formula by adding ¼ teaspoon invertase preparation to the fondant during the beating process. When the batch becomes opaque, add Part 2, color and flavor, and continue beating until the batch becames plastic. Allow to cool to room temperature. Then, by hand or machine, form the material into pieces of the desired size and shape. These pieces may be dusted with powdered sugar or wheat flour and may be dipped in chocolate at once, or after a short drying period.

Correction: See page 151, March issue, under "Note". The second sentence should be corrected to read as follows: "A small amount of lecithin, perhaps one-half per cent, based on the weight of fat, may be dissolved in the melted fat."

The End

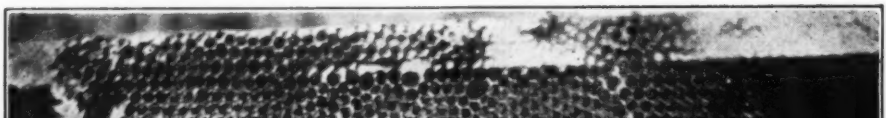
Anise-hyssop in Bloom



Anise-hyssop, the wonder honey plant attracts bees more consistently than any other of the hundreds in the honey plant test garden. Bloom June to October. —Photo by Melvin Pellett

Save that comb

by LEE R. STEWART Newport, Indiana



Drone comb as above should be cut up and rendered.

IN THIS AGE of high wages and resultant costly products great effort is placed on economic production mainly by labor saving, time saving machinery. Beekeeping is no exception. Some of these contrivances are impractical for the average beekeeper and others are ludicrous from an economic, efficient standpoint. It would take a long time to pay for a mechanical lift.

Many of the gadgets give one the impression the sponsor was trying to avoid a certain amount of labor we have always found necessary for profitable honey production.

At the present price of honey we will have to produce it for less if we hope to stay in business. We believe if more care is given to the little things our profits will be greater. And one of the little things of which we have so many is the brood comb. Did you ever stop to figure the value of a good brood comb, what it costs, and what it means in economical production?

A good brood comb should be straight and firmly attached on all sides to a sturdy frame with both horizontal and vertical wires. It should be drawn from a good grade of foundation in a honey flow. Worker cells should extend all the way to the bottom bar and to the end bars. Wires should be carefully imbedded so as not to cut or bruise foundation. Thumb marks and other damage which will result in drone cells should be avoided. There should be no drone cells within the frame. If the bees want drone cells they will build them below the bottom bar.

In spite of our utmost care we sometimes get drone cells from causes we can't understand. The number of drone cells admissable is debatable; we don't like to use any comb that contains more than one square inch or cells of drone comb.

Cost of Producing Good Comb

Good combs are expensive to produce and represent our biggest single investment. We figure each brood comb costs us 50 cents and this figure makes no allowance for any that are damaged or ruined in the process of building.

A good frame (and don't put a sheet of good foundation in a cheap frame) will cost 12 cents and a sheet of good foundation 19½ cents. It will take 8

cents worth of 12-cent honey to draw foundation and 8⅓ cents worth of labor at $1.00 per hour to nail and wire frame and fasten foundation, a total cost of 47 5/6 cents per frame. This does not include the loss of production by the bees that are taken out of production to secrete wax.

Some argue, however, that nectar-carrying bees involuntarily secrete wax and if so there would be no loss of production. You can readily see combs alone in a double brood chamber (and some use three and four) are worth approximately $10.00.

As before stated a good comb should hang straight and both vertical and horizontal wires used. If vertical wired foundation is used, two horizontal wires, the first and third spaces, should also be used. If wires have hooks be sure the hooks are back of the wedge.

The best combs are drawn over the brood chamber of a strong colony in a honey flow. A prime swarm will also draw nice combs if you place an empty super below them. A two-inch bottom board with false bottom will also give the same results. **Remember, it takes nectar or honey to draw combs but if neither is available sugar syrup may be used.**

COMBS WILL LAST indefinitely if properly cared for although possibly brood combs should be replaced after several years due to the cocoon the young bee leaves in the cell at hatching time, thus diminishing the size of the cell as well as later bees. But as this is a moot theory you will have to keep watch and if bees get smaller after a number of years it would be well to melt old combs and replace with new ones. Many beekeepers replace 10 per cent of their combs every year.

Enemies of Honey Combs

Combs have four common enemies: man, machinery, mice, and moth, but none need be serious. Rough handling by man as dropping, prying, or careless driving over rough roads either destroy or damage many combs, all of which can be avoided with care.

Improper speeds and handling in extractors often destroy combs, particularly new ones in a cool temperature. If virgin combs is not soon reversed in the extractor the weight of honey on the reverse side will often break the comb and sometimes pull it from the frame.

Combs in storage should be closed so as to exclude house mice who love to gnaw holes in them and build nests. Field mice are also destructive to brood nests in the bee yard when bees are clustered. The bees will keep them out as long as they (the bees) are active.

As soon as cool weather arrives hive entrances should be reduced to a space that will not permit the entrance of mice. One of the best entrance blocks is a comb honey scalloped slat cut to the right length and nailed on.

There are several species of moths destructive to honey combs but the Greater wax moth is the most troublesome with the Lesser wax moth and the Indian meal moth of a lesser degree. They are the most active in warm weather on unprotected combs, particularly those that contain pollen. They are no problem in cold weather nor when sufficient bees have access to combs.

There are several effective materials for controlling moth but probably the safest and most satisfactory is chloridice crystals (paradichlorobenzene). Their release of gas is greatest in hot weather, when most needed, and practically stops in cold weather, when not needed.

Good

by MRS. BENJ. NIELSEN
Aurora, Nebraska

Honey date bars.—Photo courtesy Kellogg Co.

A GRANDMOTHER TOOK infinite pains with her cooky making to have the dough just right, and rolled just so. Then came the cutting procedure and careful transferring to pans for the baking process. Scraps were gathered and rerolled. And the last ones never seemed to turn out quite as nice as the first rolling. A bit too much flour grandmother opined. Nowadays we mix, spread, drop or mold, and have some mighty fancy tasting confections in a fraction of the time grandmother spent. Or we chill our doughs and have several batches of fresh cookies from one mixing.

Grandmother may have used honey in her cooky making because she had no other sweetening at hand. Now we use it from choice because of the delectable results. Because it flavors as it sweetens it imparts a delightfully subtle flavor and a rich deep golden exterior always. Honey-way cookies are definitely better "keepers" with that just-baked freshness. To reach their real peak of rich flavor goodness they really should be stored and aged—but that's pretty difficult to do, at least it is at the Nielsen home.

Do try one or all of these:

Honey Date Bars

Two eggs, ¾ cup honey, ½ cup sifted flour, 1 teaspoon baking powder, ¼ teaspoon salt, ½ cup ready-to-eat bran, 1 cup chopped dates, and ½ cup chopped nutmeats.

Beat eggs until thick; beat in honey, a little at a time. Sift together flour, baking powder, and salt; stir in bran, dates, and nutmeats. Add to first mixture and beat well. Spread batter ½-inch thick in greased shallow 9x9-inch pan. Bake in moderate oven, 375 degrees F., about 25 minutes. Cut into bars while warm and sprinkle with powdered sugar. Can be served plain or as a pudding with whipped cream. Yield: 18 bars, 3 x 1½ inches.

Honey Nutlets

One cup shortening, 1 cup honey, 1 cup brown sugar, 1 egg, beaten, 4 cups cake flour, ½ teaspoon soda, 1 teaspoon salt, 1 teaspoon cinnamon, and 2 cups broken nutmeats.

Melt the shortening, add honey and sifted sugar. Beat thoroughly. Add egg, sifted dry ingredients and mix well. Stir in nuts and drop by teaspoons onto greased cookie sheet. Bake in moderate oven, 350 degrees F. 15 minutes. Yield: 4 dozen cookies. Store in airtight jar 10 days to ripen.

Honey Chocolate Chip Cookies

One cup cake flour, 1 teaspoon baking powder, ¼ teaspoon salt, ⅓ cup shortening, ½ cup honey, 1 egg, ½ teaspoon vanilla, ¼ cup chopped nuts (optional), and 1 package chocolate chips.

Sift flour, baking powder, and salt together. Cream shortening and honey; beat in egg; add vanilla and sifted dry ingredients. Fold in nuts and chocolate bits. Drop from teaspoon onto greased cookie sheets. Bake in moderate oven, 375 degrees F. 10 to 12 minutes. Yield 3 dozen.

Bee Facts

(A Digest of Scientific Research)

Pollen Pest Identified

AN OBSCURE pest of pollen combs, a tiny mite, has been identified by Dr. A. R. Barr of the University of Minnesota as **Carpoglyphus lactis.** This very small pest is very difficult to see without the aid of a microscope.

"The combs infested with the mite are dusty looking and the bottom board has rows of pollen dust that has sifted down between the frames. In contrast to wax moth infested combs, there are no moths present, and no tunneling is found in the comb."

The mite is apparently found in stored combs and in weak colonies that result from a severe infection of European foulbrood, according to Dr. T. A. Gochnauer of the University of Minnesota. Its presence, he points out, is probably the result of the disease rather than a cause of bee disease. No mite infestations in American foulbrood infected combs have been observed.

Reference: Gochnauer, Thomas A. An Annual Review. The Minnesota Beekeeper. Vol. VII, No. 1, pp. 10-11. Jan. 1954.

Alfalfa Pollinators

LEAFCUTTER BEES in Minnesota tripped (the mechanics of pollination in certain legumes such as alfalfa and birdsfoot trefoil is known as "tripping") an average of 97.5 per cent of the legume flowers visited as compared to 34.0 per cent by bumblebees and 0.4 per cent by honey bees.

The results of this survey by Roland L. Fischer of the University of Minnesota indicated that the bumblebees **(genus Bombus)** and the leafcutter bees **(genus Megachile)** are the two major pollinators of alfalfa in northern Minnesota. The five species of leafcutter bees and the three species of bumblebees involved are listed by the author in his report.

While the apparent effective pollination of honey bees is very low, the Minnesota scientist urges beekeepers in his area not to give up hope for the eventual effective use of honey bees as legume pollinators under Minnesota conditions.

"The native bees, particularly bumblebees, fluctuate in numbers from year to year so that they may not always be depended upon. Research work is now being conducted to determine if more effective use can be made of honey bees for pollinating alfalfa in Minnesota."

Reference: Fischer, Roland L. Native Pollinators of Alfafa in Northern Minnesota. The Minnesota Beekeeper. Vol. VI., No. 3., pp. 819. July 1953.

Will Sulfa Control A.F.B.?

EXPERIMENTS completed by R. H. Kelty, while he was a member of the Michigan Agricultural Experiment Station, appeared to show that the feeding of sulfathiazole syrup to strong colonies affected with American foulbrood may enable the colonies to remove visible evidence of the disease, **provided** the colonies are fed the sulfathiazole syrup continuously while bees are in the brood stage.

It seems, Kelty reported, that the evidence of the disease may reappear if the feeding of the sulfathiazole syrup is discontinued, particularly if there is a reserve supply of diseased food.

"Each colony in the experiment was provided with a division-board type feeder which remained in the colony throughout the experiment. The sugar syrup was made of three parts sugar to two parts of boiling water to which was added one-half gram sulfathiazole sodium for each gallon of syrup."

Reference: Kelty, R. H. Experimental Feeding of Sulfathiazole Syrup to Colonies of Bees Infected with the American Foulbrood Disease. Mich. Agric. Exp. Sta. Quarterly Bull., Vol. 30, No. 4, Pp. 473-477, May 1948.

Editorials

1954 Honey Price Support and Proposed New Legislation

THE UNITED STATES Department of Agriculture announced the Honey Price Support and Diversion Subsidy Program for 1954, see page 298. The average price of 10.2c per pound represents almost the same support level as a year ago (1/10 cent reduction) and is about in keeping with the recommendation of the American Beekeeping Federation, as well as the over-all organization, the Honey Industry Council of America.

The joint request at the National Meeting in Baltimore was that honey be supported at not less than the dollar-and-cent level which prevailed in the 1953 marketing season or 75 per cent of parity. This year parity remained almost constant and, therefore, the 70 per cent gave an average price at about the same as the 1953 marketing level. The details of the export subsidies are yet to be released.

This announcement is based on the Agricultural Act of 1949, which continues in force until the Congress prepares a new law. The Secretary of Agriculture has requested that Congress remove honey from the mandatory revisions of the act in any new law that is written and place it under permissive support which would leave the matter of honey price support up to the Secretary of Agriculture. National organizations and all branches of the bee and honey industry are unanimous in requesting of Congress that honey be retained under the mandatory provisions on the same basis as in the Act of 1949.

The industry, represented by the American Beekeeping Federation and the Honey Industry Council of America, requested and were granted hearings before the Agricultural Committees of both the Senate and the House. On March 22nd and 23rd six witnesses were present at these two hearings. Those from the American Beekeeping Federation were President Henry Schaefer and Walter Sagunsky; from the American Bee Breeders' Association, Chris Jensen; from the National Honey Packers and Dealers Association, R. B. Willson; and from the Bee Industries Association, representative and Council chairman Alan Root. The California Honey Packers and Dealers Association sent Roland Stone from California. Roy Grout, past Federation president, was also present. Mrs. Laura Shepard appeared representing California beekeepers.

The reception by both Committees of Congress was most sympathetic and it is believed that if the industry wants honey price support continued, this may be possible if these wishes are kept before the members of the two agricultural committees in Washington. If a new law is written by these committees within the next two or three months it will determine the fate of honey price support for 1955, or for that matter possibly the balance of the marketing season in 1954. If no new law is made then the act of 1949 will be in force and honey will continue under honey support.

After the Hearing is Over

Hearings on the new Agricultural bill will be over in both House and Senate Agriculture Committees when you get to read this. If the bill has not already passed write your lawmakers to be sure that honey gets MANDATORY support. It's a free country but if you want something you at least have to ask for it. This time it's MANDATORY price support for honey. You are a voter. Be a writer. Congressmen will love you for it.

[Reprinted from the Badger Bee, organ of the Wisconsin State Beekeepers' Association.]

The Centennial of American Professional Entomology

THIS YEAR, the profession of entomology is commemorating a century of service to the American public. It was in 1854 that Asa Fitch was appointed State Entomologist in New York and Townsend Glover became the first Federal Entomologist, working for the agricultural unit of the Patent Office.

From this beginning, the profession has grown to 4,500 men and women in Federal and State agencies, schools, and business firms. Through research, education, and direct control and quarantine, these entomologists now carry on the fight against honey bee diseases and our insect enemies.

Starting with the frst importation of the Italian honey bee into the United States in 1859, the bee culture division of the U. S. Department of Agriculture has always been actively engaged in promoting the improvement of American beekeeping. The most recent research on Nosema, conducted by Dr. C. L. Farrar and reported in the February issue of GLEANINGS and other beekeeping journals, is another example of the progress of entomology in the United States.

Nursed to maturity under the direction of the late Dr. E. F. Phillips, and capably managed since then by J. I. Hambleton, the bee culture division has proven itself to be an important part of the U. S. Bureau of Entomology.

We Need More Comb Honey

WHAT IS MORE beautiful and appetizing than a well filled section of comb honey? It is an article of food that cannot be duplicated. It seems to have a universal appeal. Many people who say they do not care for extracted honey do like comb honey and frequently they will say,"Now, there is some pure honey".

The comb honey era began in this country in 1876 when the first comb foundation mill was made, and continued until the Pure Food Law was enacted in 1906. This was the beginning of the second extracted honey era and we are still in it.

The production of comb honey is more difficult than the production of extracted honey. Bees hesitate to begin work in supers containing comb honey sections unless conditions are favorable. Very populous colonies and a heavy honey flow are essential for producing section comb honey successfully. It is an honey flow are essential for producing section comb honey successfully.

During recent years we have been experimenting with different methods of producing section comb honey. Our experiences have led us to believe it is entirely possible and feasible to produce comb honey over a two-story colony, instead of a single story, as is commonly practiced. The double-story method obviates considerable labor and in our opinion has some distinct advantages over the single-brood chamber method. The double-brood chamber lends itself naturally to a number of manipulations that are used to control swarming in producing extracted honey. If queen cells are found they are destroyed and the two brood chambers are reversed. The double brood chamber provides ample comb space for brood rearing. There is also more comb space for storage of pollen and consequently less likelihood of pollen being found in the comb honey sections. For more detailed information on technique employed, write for a reprint of an article on this subject that appeared in the May 1952 Gleanings.

More comb honey is needed to supply the demand for it also because it helps to sell more extracted honey.

FROM Foreign LANDS

Uses of Bee Products

PROPOLIS HAS been known to kill bacteria according to Dr. Eva Crane, who reported this and other interesting facts in the Irish Beekeeper.

"Pollen is regarded, on account of its vitamin content, as a new raw material for the pharmaceutical industry; it has also been found to reduce the incidence of tumors in mice."

Bee venom, reports the noted Dr. Crane, has been used in Europe for many years as an injection for rheumatic and other complaints. It has also been shown to inhibit the growth of certain tumors. A young commercial beekeeper has described how gradually increasing injections of diluted bee venom were successful in making him immune to bee stings after he had become allergic to them.

The Irish Beekeeper.

Medicinal Value of Pollen

CLINICAL EXPERIMENTS with pollen conducted by Remy Chauvin, Director of the Apiculture Research Station of Brues-sur-Yvette in France, revealed that pollen taken by thin people increases their weight whereas other means have failed. Pollen is also reported to stop diarrhea and has a good effect on intestinal functions.

"Up to the present time," said Dr. Chauvin, "we have only tried it out with convalescents but we intend to try it out with children. The special preparation which undergoes in our laboratories and the substances added to it remove the disagreeable taste almost completely. The high content of vitamin B and nitrogen in pollen, which are easily assimilated, makes us hope that its use in dietetics will develop in years to come."

L'Apiculteur.

Introduction of New Queens

HERE IS a simple method of introducing new queens that has resulted in enormous success for beekeepers in Belgium. It is a form of direct introduction that works well with beekeepers who maintain nuclei in their yards.

The procedure is as follows: Shake all of the bees of the colony destined to be requeened into a hive, having placed a queen excluder over it. The old queen can be easily caught as she tries to crawl through the excluder.

Spray a light syrup of water and sugar, or preferably honey from your own apiary (if in a disease-free apiary), over the bees. Then find the new queen in your nucleus and spray her also with the syrup before dropping her into the mass of bees.

With the new queen loose in the mass of bees it is time for the last step. Shake all of the bees onto a board placed at the entrance to the original hive in which the frames have first been replaced. If necessary give the bees a puff of smoke to induce them to enter. The new queen goes in with the colony, is readily accepted, starts work, and the substitution is never noticed by the bees.

La Belgique Apicole.

Choose the Bloom for Your Bees

BEEKEEPERS are urged to try training the bees in their own apiary for it is easy and will produce surprising results. Choose any flower that secrets some nectar but generally not enough to compete with other major honey plants. Then pick some of the flowers from the plant to be tested and place a half ounce of flowers in a quart of warm syrup. Let it cool and feed about a third of a pint to every colony, being sure to leave some of the infused blooms in the feeder.

Make a second feeding of the syrup the next evening and from then on the bees will be trained to the source of nectar. It will not be necessary to stimulate them any longer for "constancy of flora" will keep them at the source chosen by the beekeeper.

La Belgique Apicole.

Live and Learn

By Propolis Pete

LAST MONTH I told you about two colonies that came through the winter without being packed, and in spite of the fact that they were weak and destitute the previous fall. If they could do that, then why go to the bother of packing at all? Well, after a very warm February and a March that was just about normal most of the time, we came into an April that bids fair to break half a dozen records, in one way or another. As this is being written on April 4th, the temperature is 20 degrees, and still sliding. And am I glad now that my bees are packed.

The two colonies that lived through the hard part of two winters would seem to prove that packing is unnecessary. Actually though, during the dark days of winter, the bees are more or less dormant anyway. They use comparatively little in the way of stores, and the little brood rearing that they do doesn't use up much more. A little honey will go a long way in a cold January.

But comes the middle and end of March and the first part of April, and the picture is different. They should have quite a bit of brood in relation to their ability to cover it. The sun actually is hot as it strikes the hive, and they scatter all through the hive on a clear day. Since even the night temperatures are so much higher than they were a couple of months ago, they don't have to cluster so tightly. They just come together a little to keep the warmth around the brood.

When a cold wave like this one comes along after they have expanded quite a bit, the situation can become serious. They cluster tightly for their own survival, and the brood that they don't cover is gone forever. Not only is it gone, but with it has gone the honey and pollen that cannot be replaced yet. The energy of the bees used up in rearing it as far as it got is also gone, leaving just that much less for the new brood that they will have to start when the weather gets back to normal. Yes, the bees can go through a very cold winter without being packed, but when an unseasonable cold snap like this one comes along, the packing can be worth it's weight in golden honey and a lot more.

IT HAS BEEN known for a long time that the packing itself does not create warmth, and that the air in the hive surrounding the cluster is nearly as cold as the air outside the hive. But that condition exists when the outside temperature is consistently low. The packing slows down the rate of change to the extent that generally a sudden cold snap in the spring ends before the cold can penetrate to the point that it damages the young that are being nursed. Even in cold weather at this time of the year, the sun is mighty powerful. I have a cold frame in operation for early plants. Today, the sun was so strong that in spite of the cold, the temperature inside the cold frame was 90. I had to ventilate to keep the seedlings from being cooked. I have a solar wax extractor with a little slumgum left in it from my winter culling of combs, and the dregs of wax in it melted today. That means that it was over 140 inside that box.

They tell me that our climate is changing. We don't have winters like we used to have them. Well, in a way that is right. The Government figures show that the average temperatures for the winter months are running one or two degrees over what they did 40 or 50 years ago. But what the dickens can one or two degrees mean over a period of six months of winter? It seems to me that if the winters are getting warmer, the springs are getting a lot colder. And personally I think that the reason why the winters are warmer is not because the temperature is higher, but because we don't have to shovel coal or chop wood, and the bathroom is next to the bedroom instead of being out in the yard.

Well, be that as it may. Last January I ordered some packages to be shipped next week. Glory be if this keeps up. The elms and soft maples are blooming, but I don't know what this freeze will do to them. Next on the schedule to bloom is the pussy willow and dandelion. If all this fails, I see where the grocer is going to do some business with sugar and soy flour. I haven't any pollen reserve beyond a few combs to put in with each newly hived package, so wish me luck.

From the Field of Experience

Getting Rid of Unwanted Bees

by ROGER A. MORSE, Ithaca, New York

Honey bees and hornets can be serious pests when living in or about houses.

IF YOUR COMMUNITY is at all like Ithaca then the homes of your neighbors are often bothered by bees and wasps. Although the habits of these insects are interesting, they can be a serious nuisance.

Hornets, wasps, and yellow jackets build paper nests usually under the eaves of houses. This type of nest makes extermination easy. Any insecticide applied to the nest at night when all the adults are present will kill them. One may also knock the nest down into a pail of water or into a container which can be covered.

Carpenter bees, as the name implies, drill holes in wood. The large carpenter bee makes a hole which looks like one made with a one-half inch anger. For these insects, apply any insecticide in excess into the opening and plug the hole with a dowel or with plastic wood.

Some wasps and bumble bees nest in the ground or in piles of rubbish. In the vast majority of cases these insects make the mistake of having only one entrance to their home. In this case pour the insecticide into the hole. Some of these ground nests may contain up to two thousand individuals and in this case it is a good idea to include the use of some gas before closing the hole with dirt. Of all these stinging pests only the bumble bees store honey. It is very interesting to tear these nests apart and observe how closely they resemble the honey bee. All these insects belong to the same large group as the honey bees and being social insects have many of the same habits.

Honey Bees May Cause More Trouble

There are many cases where honey bees have remained in houses for years without causing any damage to the owner. For the safety of small children and others it is best to remove the colony. A bee tree or a colony in a house may also harbor disease and serve as a source of infection to nearby colonies.

It is best to remove the honey and comb after killing a colony. The honey may leak from the comb and run down the plaster or inside the house. Another danger is that ants and other household insects may raid the nest and create a new problem because of their numbers.

Methods for Removing Unwanted Bees

THE INEXPERIENCED person should first kill the honey bees and then remove the nest. If this is done in the fall there is usually an abundance of honey and the bees are sluggish and can be easily removed.

If the bees are to be saved, one method is to plug all entrances but one and place a bee escape over it. A weak colony of bees placed nearby with a laying queen will absorb the bees from the nest and after three or four weeks the comb and honey (and the few remaining bees) inside the house can be destroyed.

A simple trick to remove bees from logs or box hives is to place a super of comb above the nest. After a few days the queen will work her way up into this super and if an excluder is then placed between she cannot return. A few days after doing this, check to make sure the queen is laying in the super. Three weeks after the queen excluder is placed between the super and the old home all the worker brood will be hatched out below and the original home can be destroyed.

If one does not wish to save the bees or honey from a dwelling, any insecticide applied in excess to the nest will kill the bees. An easy method is to drill a hole near the top of the nest and insert a rubber hose. Allow half a cup or so of water with the insecticide mixed with it to run into the nest. A few hours later all the bees will be dead. If using this method all the holes leading to the nest must be plugged, otherwise bees may rob out the nest and some of them may die or live long enough to carry back to the hive some poisonous material.

After the bees are dead remove the siding of the house and take out the comb. Wash the nesting area with soap and water. Some odor will be left in the old nest and this might attract another swarm. To prevent this make sure there are no holes when the siding is put back in place. If the nesting area is filled with insulation one can be sure there will be no more bees entering the old nest.

Merchandising is Keynote of New York Meeting

"IF BEEKEEPERS were to build a better mousetrap, the world would not beat a path to their door" said Roland B. Peterson, director of the New York State Bureau of Commerce, as he drew an anology to the current honey marketing situation in New York. "That mouse trap must be sold —a demand created for it, and the wholesaler and retailer talked into handling it. Similarly, to get consumers to eat more honey we must tell them why they should use it."

This talk expressed the general feeling at the 86th annual convention of the Empire State Beekeepers' Association held April 2 and 3 at Albany. The merchandising theme was developed further by George Savage of the Dept. of Commerce, Eileen Burr, food editor of the ALBANY TIMES UNION, and Mrs. Harriett M. Grace, director of the American Honey Institute.

Some of the other participants in the program were Harold Andrew of the Finger Lakes Honey Coop., E. J. Dyce, W. L. Coggshall, and R. A. Morse of Cornell University, A. C. Gould, chief apiary inspector, C. A. Jamieson, Canadian Dominion Apiarist, R. B. Willson, noted honey buyer, M. W. Webster, of the U.S.D.A., and Francis Gravely of The A. I. Root Company of New York.

Election returns showed that Earl Westfall, Howe's Cave, to be the new president, with E. J. Dyce, Ithaca, field secretary, and Mrs. M. R. Cary, Syracuse, secretary-treasurer. C. C. Newton, Denmark, Harold Merrell, Walcott, and F. A. Babcock, Fredonia, were elected first, second, and third vice-presidents respectively.

Included on the board of directors are G. W. Stone, chairman, G. Walthousen, G. Norris, H. Norton, W. L. Coggshall, R. B. Willson, J. Rulison, Mrs. L. M. Wilson, A. C. Gould, H. Webb, H. Gable, R. Churchill, H. Myers, and R. Case.

The Plain Versus the Beeway Section

by G. H. LATHAM, Wilmington, Delaware

EVER SINCE I began keeping bees as a boy on our old farm in Virginia about forty years ago, I have used the 4¼x4¼x1½ inch plain comb honey section. A few years ago I did experiment with the corresponding, widely used and popular beeway section, producing perhaps 50 pounds of comb honey in them to see how I liked them. (I didn't!). Yet I hear that the beeway section is the most popular one on the market, and that manufacture of the square plain section might even be discontinued.

I do not know how that other excellent section, the 4x5 plain section, is faring, but I seldom see it on the market (despite the several advantages it has over the beeway and the square plain section). Yet on the basis of efficiency and the modern concept of compactness and a streamlined package, the beeway section is simply obsolete and should be on its way out of comb honey production.

To support this statement, which may seem presumptious coming from an amateur beekeeper with only a dozen hives and correspondingly limited experience in comb honey production, I need more than my own say-so. So I present some facts—and there can be no argument about facts, but only about how to interpret them.

This morning I weighed two sections, one the 4¼x4¼x1⅞ beeway, the other the 4¼x4¼x1½ plain section. I also calculated how much wood is needed to make each one. This is what I found.

	Beeway Section	Plain Section
Weight in grams	25.34	22.44
Weight of wood required to make (square inches)	31.9	25.5

It is thus quite plain that the beeway section requires a fourth more wood to make and weighs one-eighth more when made than the plain section. If you doubt the statistical reliability of a comparison based upon the weight of only two sections, let us look at two typical bee-supply catalogs and see what they have to say about the costs and shipping weights of 500 of each kind of section.

	Catalog A		Catalog B	
	Price	Shp. Wt.	Price	Shp. Wt.
Beeway Section*	$15.00	32 pounds	$16.30	27 pounds
Plain Section*	14.75	27 pounds	16.10	21 pounds

*Both, of course 4¼ x 4¼ inch size.

The weight and dimensional advantages of the plain section are naturally reflected in lower price, lower shipping costs, less storage space, and greater ease of handling in the flat. But the real advantages do not end there. The plain section is simpler to manufacture because the edges do not have to be "scalloped" out in four places to make the beeways—it is simply rectangular. And after it is filled with honey, it is easier than the beeway section to clean of propolis, burr comb, etc., because of the absence of beeways. Moreover, and more important, it **looks** better to the consumer.

Although both beeway and plain sections hold the same amount of honey, the plain section looks as if it were better filled. It looks still better in a window carton, which it fills so well that the comb is close to the window, whereas in the case of the beeway section, in which the comb is 3/16-inch farther from the window, the carton appears under-filled—not as well filled as the carton containing the plain section—which is psychologically poor sales appeal. I know this is true, for I have observed my own honey in plain sections selling on store shelves here in Wilmington faster than equally good honey in beeway sections. And don't let's forget, either, that the cartons for plain sections themselves are smaller and therefore are less wasteful of paper and space even though supply houses make no difference in price.

Aside from these economic considerations, the plain section has an important technical advantage over its beeway competitor, and that is, bees work in it better. In nature, honeycombs are built a bee-space apart with nothing between them. In the usual beeway comb honey super, each honeycomb is not only isolated from the others by a solid wood separator but is also spaced farther apart from the

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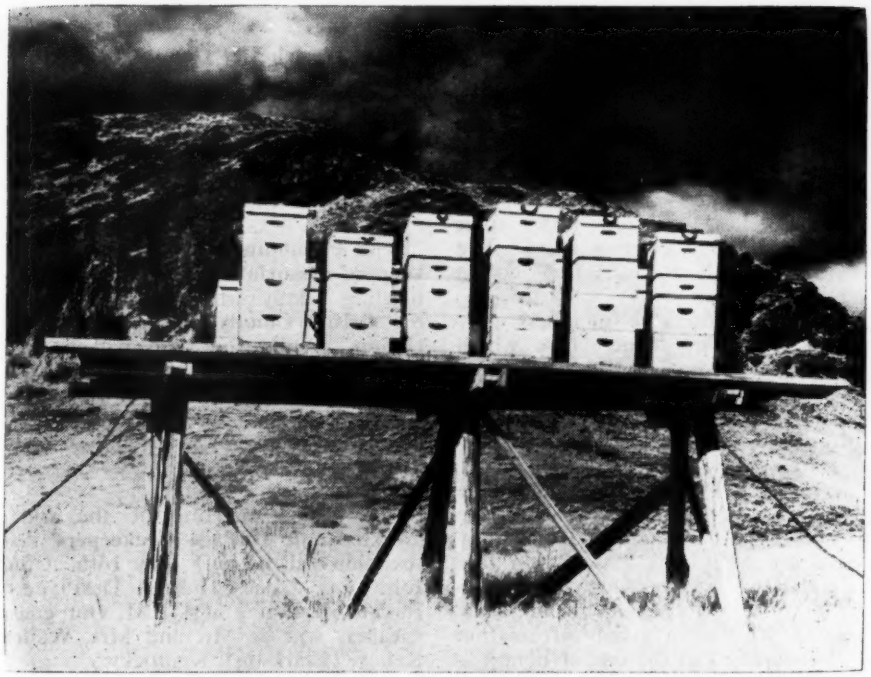
Protecting Apiaries Against Bears

by LOUIS H. JOHNSON, Washington State Apiary Inspector



Here is a good way to prevent bear damage in an apiary.

WHILE ON inspection in Oroville, Washington, I came across a Mr. L. E. Philips, who operates approximately 350 colonies in the Oroville Mountains, and who year after year received terrible damage from destruction caused by the brown bear. Mr. Philips was determined to do something to prevent the loss he was continuously getting. He constructed several elevated platforms which halted the bear from their destination.

In the spring of each year, following the pollination of the apple bloom, Mr. Philips moved his bees from the orchards to higher mountain range, because of the poisonous sprays the orchard men used. In the high range there is an abundance of wild flower bloom, but also there are many brown bear which often get into a yard and do a considerable amount of damage to both the hives and the bees.

In the spring of 1953, Mr. Philips built several elevated platforms in the Oaknogan Mountains. Each platform accommodates 14 colonies nicely at a material cost of $12.00 each. The platforms are so constructed that it would be hard for the bear to climb onto them as the shelf protection extends over approximately two and a half feet.

Inspectors don't have it too easy these days with beekeepers building 14 feet high platforms on which to keep their bees. Among all of the other inspection equipment I also have to take a "ladder" so I can get to the bee hives.

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(Continued from previous page)

opposite combs than in nature. No wonder such socially-minded insects as honey bees are disinclined to work in such a super. In the plain section super, on the other hand, the combs are not separated by solid wood barriers, but only by a slatted fence which, while still undesirable, at least permits closer spacing and fairly free intercommunication between sections.

Just News

Middlesex County Beekeepers' Association (Mass.) will hold its first outdoor meeting of the season on May 22, at the home and apiaries of member Mrs. S. S. Fitzgerald at 62 South Avenue, Weston, Mass., at 2:30 P.M. Those beekeepers in the area may attend if they wish to bring their picnic basket for evening meal. The Association will furnish free coffee and ice cream.

At this meeting the members may inspect the "New Club" hive which was started at the last indoor meeting at the Waltham Field Station by placing a package of Italian honey bees with queen in a standard Langstroth ten-frame hive with only foundation. This empty hive was on exhibit at the 125th annual Flower Show of the Massachusetts Horticultural Society where the Middlesex Association had a beekeeping display which was viewed by 127,000 people from New England who were given information on beekeeping and the use of honey as a food. The Association was awarded the Silver Medal and a special award in cash.—John H. Furber, Sec.-Treas.

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The **Eastern Missouri Beekeepers' Association** will hold its annual field meet at Grays Summit, Missouri, Sunday, June 13. Everyone is invited to the Field House where the meeting will be held.

Mr. August H. Beilmann, nationally known authority on plant and insect life, will lead a tour through the famous arboretum. Nationally famous beekeeping specialists will participate in the program. Practical demonstrations in beekeeping management will be presented. Door prizes will be awarded during the affair.—W. N. Snyder.

●

Canadian Bee Meeting. Plans are currently being made for the 75th annual meeting of the **Ontario Beekeepers' Association,** according to a report in the CANADIAN BEE JOURNAL. The event is scheduled for November 29 through December 1 at Toronto's King Edward Hotel.

The **Westchester County Beekeepers' Association** will hold its next meeting at 2:30 P.M., Sunday, May 16th, at the Odd Fellows Hall, 20 Lockwood Ave., New Rochelle, N. Y. All persons interested in beekeeping are welcome.—Carlton E. Slater, Pub.

●

The **Plymouth County** (Mass.) **Beekeepers' Association** will hold its next meeting jointly with the members of the **Bristle County Beekeepers' Association.** While the date will be announced later, the event will occur at the Bridgewater State Farm Hall. Dr. Frank R. Shaw, beekeeping specialist at the University of Massachusetts will be the guest speaker.

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The spring meeting of the wide-awake **Cook DuPage Beekeepers' Association** will be held May 16th at the John Lis Honey Farm, DesPlaines, Illinois, beginning at 1 P.M. Our guest speakers will be Mr. and Mrs. Walter Kelley, Clarkson, Kentucky.

For a special attraction, the Kelley's will demonstrate their new hive loader. This device, which sets behind the cab on a one and a half ton or larger truck, operates from the truck battery with push button controls and can be used to lift up supers in examining the brood nest as well as for loading supers and hives on the truck. It has a 16-foot boom which revolves 360 degrees and which can be raised 8 feet above the bed of the truck. Commercial beekeepers from a wide area are expected to attend to view the demonstration.

The **Cook DuPage Beekeepers' Association** will be host to the American Beekeeping Federation at their convention the last week of January 1955 at the Sherman Hotel, Chicago, Ill.—A. J. Smith, Sec.

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The **University of Minnesota's 12th Annual Beekeepers' Short Course** and training for State Apiary Inspectors will be held May 5 to 7 in Room 107, Agricultural Engineering Building, and Room 312, Coffey Hall. The fee for each course is $5.00. Members of

the University staff, also C. D. Floyd, State Apiarist for Minnesota, and D. R. Robertson, Provincial Apiarist of Manitoba, will appear on the program.

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The program for the **Short Course** to be offered to the **Iowa Beekeepers** at Ames on May 11 and 12 will feature the recent developments in the control of bee diseases. Rapid advances have been made in this area and this information should be made available to every producer as a means of effecting more efficient production of honey. Losses by diseases constitute a very serious handicap to efficient honey production. The program, in reality, will be a review of the program which was presented to the Apiary Inspectors of America at their meeting in Baltimore.

This course is free to any beekeepers who are interested in advancing their information on honey production. There is no enrollment fee for this course. The detailed program will be available for distribution by May 1. It is not necessary to have a program to plan to attend the meetings. So plan to bring a carload of your friends.—F. B. Paddock, Extension Apiarist.

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Farm Bureau Endorses Honey Industry Request for Mandatory Support.—At the request of members of the American Beekeeping Federation Executive Committee, the Board of Directors of the Farm Bureau invited Federation President Henry Schaefer to address their meeting on March 31st. Word has just come from that organization that its directors now support the Federation in its request to have honey remain on the mandatory price support basis in any new agricultural act Congress may write.

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Arkansas Gets New Apiary Inspector.—George W. Freeman of Ozark, Arkansas, succeeds the late J. H. Davis, as the new Arkansas state inspector of apiaries. In 1953, Mr. Davis was killed in an automobile accident.

We want to wish Mr. Freeman lots of luck in his new job although we are confident that he will handle his new work very well. His past experience as a state senator, a member of the Soil Conservation Service, a U. S. artillery officer in World War II, and also as a beekeeper, should enable G. W. Freeman to successfully meet all of the unexpected problems that confront every inspector.

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Complete itinerary for the tour to Europe to include the **International Beekeeping Congress** in Copenhagen, August 31-Sept. 4, now available by writing **Mrs. A. W. Stephen, Box 92, Cary, N. C.** Application should be made soon as possible, to insure transportation.

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Inspector Retires.—Harry B. Kirk, chief inspector of Pennsylvania, retires after 41 years of service according to the March issue of the PENNSYLVANIA BEEKEEPER. He is to be succeeded by George Sleesman.

The retirement of Mr. Kirk will be a big loss to Pennsylvania beekeepers for he has been one of the most successful apiary inspectors in America. However, we are sure that Mr. Sleesman will prove to be as cooperative and efficient, and Gleanings wishes him lots of luck in his new position.

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Cornell Scientist Honored.—In appreciation for outstanding research in beekeeping and honey processing, the Empire State Beekeepers' Association awarded a barometer to Dr. E. J. Dyce of Cornell University, Ithaca, New York.

The presentation was made by Mrs. Harriett M. Grace, director of the American Honey Institute, at the annual meeting of the New York Association, held at Albany, New York, April 2 and 3, Gleanings offers its congratulations to Dr. Dyce, one of America's leading beekeeping specialists.

George B. Howe, Sr.—Northern New York's oldest beekeeper passed away in Mercy Hospital, Watertown, N. Y., April 8, 1954. He was born in the town of Shelburne between Greenfield and Shelburne Falls, September 15, 1865.

Mr. Howe spent 75 years with the bees and for over 60 years he was a

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Honey price support and diversion programs announced for 1954

THE U. S. Department of Agriculture announced today that honey will be supported during the 1954 marketing season, which starts April 1, at a national average price of 10.2 cents per pound. This is 70 per cent of the current parity price adjusted to the 60-pound container level.

Price support for honey within a range of 60 to 90 per cent of parity is mandatory under the Agricultural Act of 1949, as amended.

This program is substantially the same as the one in effect last year. Prices for honey will be supported through farm-storage loans and by offer of the Commodity Credit Corporation to purchase honey delivered by producers under purchase agreements. Beekeepers or cooperative associations of beekeepers can apply for loans or purchase agreements directly to the Agricultural Stabilization and Conservation county offices.

The honey export and diversion programs will also be continued during the 1954 marketing season in a manner similar to that of the 1953 marketing season. The rate of payment on honey diverted will be 3.75 cents per pound as compared to four cents per pound paid last year. Details of the export program will be released later.

In announcing the honey price support program, the Department again urges beekeepers to increase their efforts toward utilizing bees in pollination of important pasture, seed, vegetable, and fruit crops on a remunerative basis. The honey price support program authorized in the Agricultural Act of 1949 is intended to extend interim financial assistance to beekeepers, thus provding them an opportunity to place their operations on a self-supporting basis. The Department also emphasized the importance of continued and intensified activity in improving the marketing and distribution of honey by all elements in the industry.

Detailed information regarding the foregoing programs, including support prices by classes of honey and areas of production, will be available in the near future. Here is a portion.

Support Prices:

Loans will be made, and honey delivered under purchase agreements will be purchased, at the support prices set forth below:

For All States East of Montana, Wyoming, Colorado and New Mexico

	Rate (cents per pound)
1. White and lighter table honey	11.3
2. Extra Light Amber table honey	10.8
3. Nontable and other table honey	9.3

For States of Montana, Wyoming, Colorado, New Mexico and States West Thereof

	Rate (cents per pound)
1. White and lighter table honey	10.4
2. Extra Light Amber table honey	9.9
3. Nontable and other table honey	8.4

Loans will be made at the applicable support price established for the State in which the honey is stored.

(a) "Table honey" means honey having the predominant flavor of not more than two floral sources, and preferably one, which can be readily marketed for table use in all parts of the country. Such honey includes those with the predominant flavors of Alfalfa, Brazil Brush, Catsclaw, Clover, Cotton, Fireweed, Gallberry, Huajillo, Lima Bean, Mesquite, Orange, Raspberry, Sage, Sourwood, Star Thistle, Sweetclover, Tupelo, Vetch, Western Wild Buckwheat, and similar predominantly mild-flavored honeys, or predominantly mild-flavored blends of honey, as determined by the Director, Sugar Division, CSS.

(b) "Nontable honey" means honey having a predominant flavor of limited national acceptability for table use but considered to be suitable for table use in most areas in which it is produced. Such honeys include those with the predominant flavors of Aster, Buckwheat (except Western Wild Buckwheat), Goldenrod, Heartsease (Smartweed), Horsemint, Mangrove-Palmetto, Manzanita, Mint, Partridge Pea, Rattan Vine, Salt Cedar (Tamarix gallica), Spanish Needle, Ti-ti, Toyon (Christmas Berry), Tulip-Poplar, and similarly-flavored honeys, or blends of such honeys, as determined by the Director, Sugar Division, CSS.

(See editorial on page 288)

American Honey Institute News Notes

By Harriett M. Grace, Director
Commercial State Bank Building, Madison 3, Wisconsin

NO NEED for us to search about for a theme on which to base our honey promotion. **Honey has abundant riches that can be lauded without exaggeration or boastfulness.** We are merchants of a wealthy ware.

In other words, we don't need to strum fanciful tunes on our violin of high pressure salesmanship. No, siree. Honey speaks loudly and strongly enough for itself.

Our only task is to let it speak.

What, you say? Let it speak? Well, who am I to cover up honey's virtues? I, a beekeeper, more than anyone else, have something to gain by letting honey shine. Why should I mask its true value?

Of course, you shouldn't and don't intend to. But perhaps there is something to this business of standing so close to the trees you can't see the forest. Perhaps we are so used to handling honey that we overlook its obvious merits.

This is what we mean: By a gift of nature, the very word "Honey" recalls images of something clean, pure, and sanitary. And by coincidence, this quality of cleanliness is also one that tempts the homemaker to commit the actual act of purchase. But, do beekeepers and honey retailers capitalize on this gift?

Not always, unfortunately. Honey jars must be immaculate, shiny-clean. They must be neatly labelled, with colors that are neither garish nor blatant. They must let the honey shine through so that the luscious translucency of the honey can speak for itself. They must be neatly stacked, well arranged into an effective display, for orderliness hints at cleanliness.

It has been said that cleanliness is next to Godliness. We believe it. And we certainly **know** that cleanliness comes before a sale.

We have seen some very effective, clever honey merchants who have played honey's natural purity and sanitary appeal up to the hilt. It is no coincident that they are also the most successful businessmen.

This spring is your chance to cash in on this idea. Remember that honey to look pure must be pure. Start with your honey house, your honey processing equipment, your honey labels. Are they all in the best of condition for the coming season?

When the honey flow starts coming in, handle it with the care you would afford the crown jewels of a kingdom. For in fact, honey is the crown jewels of your own particular kingdom. If honey is clean to start with—and it is—keep it that way by infinite care when you handle it.

EACH JAR of honey should appear on the market with the same countenance as that found on the freshly scrubbed face of a twelve-year-old boy.

Now, for another of honey's trademarks—quick energy. We cannot pound that into the consuming public too often or too hard. It sells. It sells like few other ideas can sell. We could proclaim, and exhort and boast, and beat our breasts about honey's good flavor or nutritional values, and we would sell a few more jars of honey. But not enough to keep us in shoestrings. But if we tell the homemaker that honey packs punch—then, she will buy.

She will buy as she buys coffee. For why does an adult drink coffee in the morning but for the extra jolt he gets from it?

She will buy as she buys candy. For why does a candy bar taste so good in mid-afternoon but for the pick-up the candy's sugars give?

And she will buy honey for the same reason. If only we tell her about honey's great properties as a quick source of energy.

We must tell her—through advertising, through promotion—for if we do not tell her she will not know. And then we will have only ourselves to blame for a slow honey market.

But if we speak up in our advertising program and let honey speak up through a spic and span honey jar, we cannot go amiss this season. Honey will be a hit.

Who's Who in APICULTURE

To supply a handy reference of the names and addresses of state and provincial apiary inspectors, secretaries of beekeepers' associations, extension workers in beekeeping, and other information often needed by our readers, we have corrected our Who's Who in Apiculture as of April 1 1954.

State or Province	Bees on Combs Admitted	Net Weight Law		Inspector State or Province	Secretary State Association
		Extracted	Comb		
Ala.	No	Yes	Yes	C. A. North, Montgomery	F. E. Guyton, Auburn
Alta.	Permit	Yes	Yes	W. G. le Maistre, Edmonton	Eric Boswell, Brooks
Ariz.	Cert.	Yes	Yes	Niles D. Benson, Phoenix	Clarence L. Benson, Phoenix
Ark.	Cert.	Yes	Yes	G. W. Freeman, Little Rock	Rea H. Davis, Little Rock
B. C.	No	Yes	Yes	John Corner, Vernon	John Corner, Vernon
Calif.	Cert.	Yes	Yes	E. R. Jaycox, Sacramento	A. K. Whidden Corona
Colo.	Permit	Yes	Yes	Glenn J. Spaulding, Denver	Jim Smith, Los Animas
Conn.	Cert.	Yes	Yes	M. P. Zappe, New Haven	Mrs. A. Creevy, Stratford
Del.	Cert.	No	No	John W. Dukes, Dover	John W. Dukes, Dover
Fla.	Permit	Yes	Yes	H. S. Foster, Gainesville	Mrs. Nellie Larkin, Bristol
Ga.	Permit	Yes	Yes	None	J. F. Girardeau, Tifton
Ida.	Permit	No	No	C. F. Feeler, Nampa	Dewey Olsen, Preston
Ills.	Cert.	Yes	Yes	Carl E. Killion, Paris	Hoyt Taylor, Pleasant Plains
Ind.	Cert.	Yes	Yes	Gilbert Perigo, Indianapolis	Gilbert Perigo, Indianapolis
Iowa	Cert.	Yes	Yes	F. B. Paddock Ames	F. B. Paddock Ames
Kans.	Cert.	Yes	Yes	R. L. Parker, Manhattan	Will T. Roberts, Kansas City
Ky.	Cert.	Yes	Yes	Fred Miller, Frankfort	L. T. Osbourne, Crestwood
La.	No	Yes	Yes	S. J. McCrory, Baton Rouge	S. J. McCrory, Baton Rouge
Me.	Cert.	Yes	Yes	Reginald B. Swan, Brewer	C. A. Stanhope, Bradford
Man.	Cert.	Yes	Yes	D. R. Robertson, Winnipeg	D. R. Robertson, Winnipeg
Md.	Cert.	No	No	G. J. Abrams, College Park	G. J. Abrams, College Park
Mass.	No	Yes	Yes	Milo Bacon, Boston	W. R. Parker, W. Boylston
Mich.	No	Yes	Yes	Don P. Barrett, Lansing	Mrs. M. Seidelman, Ionia
Minn.	Cert.	Yes	Yes	C. D. Floyd, St. Paul	Robert Banker Cannon Falls
Miss.	Cert.	Yes	Yes	Homer Tate, State College	C. A. Wilson, State College
Mo.	No. Reg.	Yes	Yes	J. Anderson, Jefferson City	Stirling Kyd, Columbia
Mont.	Permit	Yes	Yes	Lloyd N. Graham, Bozeman	Mrs. O. R. Burdette, Laurel
Nebr.		Yes	Yes	C. J. Walstrom, Lincoln	Edw. A. Wolfe, North Platte
Nev.	No	Yes	Yes	George G. Schweis, Reno	Edward Records,
N. B.	No	Yes	No	Ersel F. Moore, Fredericton	Reade W. Ferris, Fredericton
N. H.		Yes	Yes		
N. J.	Cert.	Yes	Yes	Paul L. Holcombe, Trenton	M. H. Stricker, Annandale
N. M.	Cert.	Yes	Yes	J. R. Poe, State College	Ersel C. Edwards Los Lunas
N. Y.	Cert.	Yes	No	A. C. Gould, Albany	Mrs. E. T. Cary, Syracuse
N. C.	Cert.	Yes	Yes	James F. Greene, Raleigh	Eugene B. Finch, Raleigh
N. D.	Permitted	Yes	No	D. G. Aanestad, Kloten	Rudolph Ottersen, Fargo
N. S.	No	Yes	Yes	E. A. Karmo, Truro	Philip Bishop, Sackville
Ohio	Per. & Cert.	Yes	Yes	S. E. Bailey, Columbus	R. Livermore, Belle Center
Okla.	Cert.	Yes	Yes	Clyde A. Bower, Okla. City	Glenn Gibson, Minco
Ont.	Permit	Yes	Yes	P. W. Burke, Guelph	G. F. Townsend Guelph
Ore.	Cert.	Yes	Yes	A. Burr Black, Salem	Oliver W. Petty, Albany
Pa.	Cert.	Yes	Yes	Geo. Sleesman, Harrisburg	A. R. Dean, Pittsburgh
Que.	Cert.		Yes	Jules R. Methot, Quebec	J. Prud'homme, St. Isidore
R. I.	Cert.	Yes	Yes	Howard A. Pike, Conimicut	Mrs. A. Laporte, Woonsocket
Sask.	No	Yes	No	J. H. Arnott, Regina	R. M. Pugh, Tisdale
S. C.	Cert.	Yes	No	W. H. Purser, Clemson	J. F. Switzer, Roebuck
S. D.	Cert.	Yes	Yes	Warren Miller, Pierre	Warren Miller, Pierre
Tenn.	Cert.	Yes	Yes	L. H. Little Nashville	L. H. Little, Shelbyville
Texas	Cert.	Yes	Yes	C. J. Burgin, College Station	F. L. Thomas, College Sta.
Utah	Cert.	Yes	Yes	J. I. Curtis, Salt Lake City	J. I. Curtis, Salt Lake City
Vt.	Cert.	Yes	Yes	Rob. Mead, White River Jct.	C. N. Wood, S. Woodstock
Va.	Cert.	Yes	Yes	H. Weatherford, Vernon Hill	H. Weatherford, Vernon Hill
Wash.	Quar.	Yes	Yes	C. F. Turnipseed, Arlington	Mrs. C. Van Wetchel, Natches
W. Va.	No honey	Yes	Yes	None	No association
Wisc.	Permit	Yes	Yes	John F. Long, Madison	A. R. Vosburg, Ft. Atkinson
Wyo.	Cert.	Yes	Yes	C. A. Beavers, Powell	A. P. Sturtevant, Laramie

United States—Division of Bee Culture and Biological Control, James I. Hambleton in charge Beltsville, Md., Section of Bee Culture Research, W. J. Nolan, Beltsville, Md., Southern States Field Laboratory, W. J. Whitcomb, Baton Rouge, La.; Pacific Coast Laboratory, George H. Vansell, Davis, Calif.; Inter-Mountain Laboratory, A. P. Sturtevant, Laramie, Wyo.; Bee Culture Field Station, C. L. Farrar, Madison, Wisc; University of Arizona, Frank E. Todd, Tucson, Ariz. Research Centers: Logan, Utah, George E. Bohart; San Antonio, Texas, A. H. Alex; Corvallis, Oregon, H. A. Scullen.

Production and Marketing, U. S. Department of Agriculture—Harold J. Clay, Washington, D. C., Marvin Webster, Assistant.

Dominion of Canada—Investigation and Demonstration in Bee Culture: Cecil A. Jamieson, Dominion Apiarist, Experiment Farm, Ottawa Canada; Bee Breeding Station, Pelee Island, Ontario, Prof. G. F. Townsend in charge.

Apiary Inspectors of America—President, Prof. F. B. Paddock, Ames, Iowa; Secretary, C. D. Floyd, St. Paul, Minn.; Regional Vice-Presidents: Elbert R. Jaycox, California; Seymour E. Bailey, Ohio; Mr. Huet, Connecticut; C. J. Burgin Texas.

American Beekeeping Federation—President, Henry Schaffer, Osseo, Wisc.; Vice-President, Howard Foster, Bridger, Montana; Secretary-Treasurer, Robert Banker, Cannon Falls, Minn.

Ladies' Auxiliary of American Beekeeping Federation—President, Mrs. Henry Schaefer, Osseo, Wisc.; Vice-President, Mrs. Newman Lyle, Sheldon, Iowa; Secretary-Treasurer, Mrs. Robert Wahlstrom, Ames, Iowa.

Bee Industries' Association—President, Howard Dankemeyer, Marshfield, Wisconsin; Secretary, R. H. Dadant, Hamilton, Ill. ;Treasurer, Baxter Woodman, Grand Rapids, Mich.

Southern States Beekeepers' Federation—President, A. D. Hiett, Martinsburg, W. Va.; Vice-President, Lynn M. Dewey, Merritt Island, Florida, Secretary, Hardin S. Foster, Gainesville, Florida.

American Bee Breeders' Association—President, J. W. Newton, Baton Rouge, La.; Vice-President, W. W. Wicht, Hattiesburg, Miss.; Secretary, J. F. McVay, Jackson, Ala.

American Honey Institute—Director, Mrs. Harriett M. Grace, Madison, Wisc.; R. F. Remer, Sioux City, Chairman, Board of Directors.

National Honey Packers and Dealers Association—President, R. B. Willson, New York, N. Y.; Vice-President, R. F. Remer, Sioux City, Iowa; Secretary, Roland C. Stone, Los Angeles, Calif.; Treasurer, Edward Burleson, Waxahachie, Texas.

Honey Industry Council of America—Chairman, Alan I Root, Medina, Ohio; Vice-President, R. B. Willson, New York, N. Y.; Secretary-Treasurer, Glenn Gibson, Minco Oklahoma.

State or Province	Beekeeping Taught in Agri. Col.	Annual Short Course	Professor in Charge of Beekeeping Course	Extension Work Carried on	Extension Specialists in Beekeeping
Ala.	Yes		F. E. Guyton, Auburn	Yes	W. A. Ruffin, Auburn
Alta.	No	Yes		Yes	W. G. leMaistre, Edmonton
Ariz.	No			Yes	Frank E. Todd,
B. C.	No	Yes	Mr. Des Champs, Vernon	Yes	John Corner, Vernon
Calif.	Yes		H. H. Laidlaw, J. E. Eckert	Yes	J. E. Eckert, Davis
Colo.	Yes		L. B. Daniels, Fort Collins	Yes	Jos. O. Moffett, Fort Collins
Conn.	Yes		Wm. Tunio,	Yes	Wm. Tunio,
Fla.	Yes		J. D. Haynie F. A. Robinson	Yes	M. Murphy, Gainesville
Ida.	Limited			Yes	Portman, Moscow
Ills.	Yes		V. G. Milum, Urbana	Yes	V. G. Milum, Urbana
Ind.	Yes		B. E. Montgomery, Lafayette	Yes	B. E. Montgomery, Lafayette
Iowa	Yes	Yes	F. B. Paddock, O. W. Park	Yes	F. Paddock, R. J. Walstrom
Kans.	Yes		R. L. Parker, Manhattan	No	
Ky.	Yes		Lee Townsend, Lexington	No	
Me.	Yes		Chas. O. Dirks, Orono	Yes	Chas. O. Dirks, Orono
Man.	Yes		A. V. Mitchener, Winnipeg	Yes	D. R. Robertson, Winnipeg
Md.	Yes		Geo. J. Abrams, College Pk.	Yes	Geo. J. Abrams, College Pk.
Mass.	Yes		Frank R. Shaw, Amherst	Yes	Frank R. Shaw, Amherst
Mich.	Yes		E. C. Martin, E. Lansing	Yes	E. C. Martin, E. Lansing
Minn.	Yes	Yes	M. H. Haydak, St. Paul	Yes	M. H. Haydak, St. Paul
Miss.	Yes		C. A. Wilson State College	Some	A. G. Bennett, State Col.
Mo.	Yes		Leonard Haseman, Columbia	No	
Nev.	Yes		O. S. Bare, Lincoln	No	
N. B.	Yes		Provincial Apiarist	Yes	Provincial Apiarist
N. H.				Yes	J. R. Hepler, Durham
N. J.	No			Yes	R. S. Filmer, New Bruns.
N. M.	No				
N. Y.	Yes		E. J. Dyce, Ithaca	Yes	W. L. Coggshall, Ithaca
N. C.	Yes		W. A. Stephen, Raleigh	Yes	W. A. Stephen, Raleigh
N. D.	Yes		J. A. Callenbach, Fargo	Yes	Wayne J. Colberg, Fargo
N. S.	Yes		E. A. Karmo, Truro	Yes	E. A. Karmo, Truro
Ohio	Yes		W. E. Dunham, Columbus	Yes	Chas. A. Reese, Columbus
Okla.	Yes		G. A. Bierbedorff. Stillwater	Yes	C. F. Stiles Stillwater
Ont.	Yes		G. F. Townsend, Guelph	Yes	G. F. Townsend, Guelph
Ore.	Yes		Dr. Stephens, Corvallis	Yes	Dr. Stephens, Corvallis
Pa.		Yes	E. J. Anderson, State Col.	Yes	W. W. Clarke, State College
Que.	Yes		H. J. Plourde, Levis		
Sask.	Yes		C. F. Patterson, Saskatoon	Yes	J. H. Arnott, Regina
S. C.	Yes		D. Dunavan, Clemson Col.	Yes	W. H. Johnson, Clemson Col.
Tenn.	Yes		B. S. Pickitt, Knoxville	No	
Texas	Yes		F. L. Thomas, College Sta.	Yes	State Entomologist
Utah	Yes		M. D. Levin, Logan		
Vt.	No			No	
Va.	Yes		J. M. Grayson, Blacksburg	Part time	John M. Amos, Blacksburg
Wash.	No			Partial	Carl Johansen, Pullman
Wisc.	Yes		C. L. Farrar, Madison	Yes	C. L. Farrar, Madison
Wyo.	Yes		I. L. Revell, Laramie	Yes	A. P. Sturtevant, Laramie

A Talk to Beekeepers

With Special Attention to Beginners

M. J. Deyell

Keep in Mind Objective

WE REALLY should know where we are going in beekeeping. Apparently, some beekeepers do not have their objective clearly in mind. That may be why they do not arrive. Our objective should be to secure the maximum crop of surplus honey and wax. In order to do this we must have good bees and good beekeeping equipment, then give the bees a chance to do their best work. That, in a word, is intelligent apiary management.

As stated in a previous talk, colonies of bees, during the active season, need an ample amount of comb space and an adequate amount of food,—honey and pollen, especially during the spring months when they are building up to their peak of strength prior to the beginning of the major honey flow.

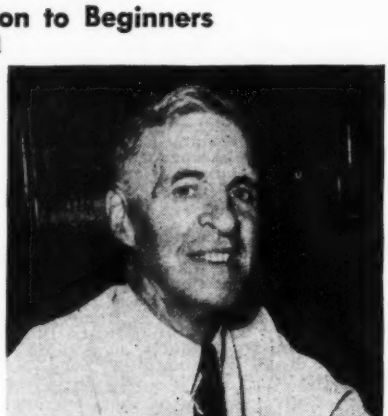
In some instances colonies run low on stores at this most critical time. Consequently, queens curtail their egg laying which reduces the population of hives and this in turn reduces the amount of surplus honey secured. There should never be less than 15 pounds of honey (about three well-filled standard combs) in each hive during the spring months.

Swarming

I once knew a beekeeper who prided himself on having a large number of swarms each season. When I told him that I tried to prevent swarming, in order to keep all the bees in each hive, to secure larger crops of honey, he did not understand what I was talking about.

While swarming can not be absolutely prevented, it can be controlled to a certain extent. Colonies wintered in single story hives in the North usually become very strong in bees during the fruit bloom and dandelion honey flow. When such colonies have brood in eight combs, it is time to put on a super of extracting combs, without a queen excluder, to provide more comb space for brood rearing and incoming nectar. This relieves congestion and, as a rule, prevents swarming.

Colonies wintered in double brood



M. J. Deyell

chambers may also become very populous during the spring honey flow and it is necessary as a rule, to give each colony one or more supers of extracting combs to provide more comb space. This super may be given without using a queen excluder underneath it, so that the queen may occupy the combs of the super for brood rearing if necessary when the combs below become crowded. However, this makes more work later on when the queen is put down into the brood chamber, under the queen excluder, to restrict her to the brood chamber during the main flow. Some do not use queen excluders, but in my opinion they serve a useful purpose if used intelligently. I dislike finding combs with brood in extracting supers when the honey is taken off.

Signs of Swarming

Some colonies may be intent on swarming regardless of control measures. It is well that a colony gives advance notice of swarming. The bees build queen cells along the lower edges of brood combs. These cells are easily recognized because they are different from other cells. Instead of being horizontal as are worker and drone cells, they are built in a vertical position with the openings at the

lower end. They resemble peanut shells.

When the cells are first started they resemble shallow cups. A little later on, as the sides of the cells are being built, each cell will be seen to contain an egg. A swarm will issue after the eggs have hatched and the larvae have developed, usually at the time the queen cells are capped, which is about eight days after the eggs are deposited in the cells.

What to do if a Swarm Comes Out

The old method of handling a swarm was to put it in a hive on a new stand. A much better method is to set the old, or parent hive from which the swarm came, on a new stand a few feet away, as soon as the swarm issues giving the hive a quarter turn, thus facing its entrance away from its former position.

Another hive containing either frames with full sheets of foundation wired, or drawn combs, is placed on the old stand to receive the swarm. It does no harm to give this hive a comb of brood taken from the parent hive to help the swarm to get established readily.

Frequently the swarm will cluster on the limb of a tree. Sometimes the bees cluster near the top of a tall tree, which causes the owner to do some tree climbing. The limb, if it is not too large, may be cut off and the bees shaken directly in front of the hive to receive the swarm. If it is impossible to saw the limb off, the swarm may be shaken into a large two-bushel basket with a wire wound around one of the handles, so that after the bees are shaken into the basket, the handle may be wired to the limb of the tree temporarily, until the swarm, including bees in the air, have clustered on the inside of the basket just below the handle. After the swarm is clustered it may be carried to the hive and dumped in front of the entrance.

After two days, the parent hive which was moved to the new location near by, should be given a quarter turn to face the same direction as the hive containing the swarm. Then, after seven days, this parent hive may be moved to another location at least 15 feet away. The moving should be done during the middle of the day when a large percentage of the old bees are in the fields. When the field bees return and do not find their hive, they will easily find their way into the hive on the old stand containing the swarm and will help to increase the population of this new hive.

If the swarm is clustered where it can be easily reached it can be shaken into a basket.

In a short time, the old hive that has been moved to the new location should have a young laying queen. If swarming occurs early in the season and the honey flow is long drawn out, this parent hive may store some surplus, but, as a rule, no surplus may be expected from the old parent hive the same season. This hive of bees should be in prime condition for storing a crop of honey the following season.

Michigan Experiences

Chapter 5

My Wife Hives Swarms

ONE MORNING during the height of the main honey flow I had to make a trip to Copemish, six miles away, to pick up a part for the Model-T Ford which refused to go. I had to make the trip on foot although I did

get a ride part of the way. It was a hot day, just right for swarms to issue and as I approached our apiary on my way home I could see my wife dressed in white coveralls, the bottoms tied around her ankles, with bee veil, gloves and smoker, hiving a swarm. She had captured three or four swarms that morning and was about to dump the last swarm in front of a hive when the basket slipped and rolled sidewise, down a hill, leaving a string of bees in the path of the basket. When I arrived on the scene there were tears in my wife's eyes because of the mistake she had made in manipulating the two-bushel basket containing the large swarm. She was comforted when I told her that I would perhaps have made the same mistake.

I should say that most of the colonies, especially the ones run for comb honey had their queens' wings clipped but a few colones did not have clipped queens. I do believe there is an advantage in having the wings of queens clipped, especially in colonies devoted to section comb honey production, if the owner is obliged to be away during the day.

A Two-Day Vacation

With no electricity we did not have a telephone or radio. We subscribed for a Cadillac paper that reached us the day after it came off the press. There was no rural mail delivery so we had to drive up to Copemish two or three times a week for our mail, also groceries. We were out of touch with the outside world and felt as though we needed at least a short vacation.

Early in August, after we had extracted a part of our honey crop we decided to take two days off to visit Traverse City, about 40 miles North of us. Our Ford did not have a top to shelter us from rain. The roads were not paved or marked at that time. We knew that Traverse City was North of us so we started off in that direction over a dirt road until we hit a highway that appeared to be fairly well traveled. People who drive secondary roads in Northern Michigan among the sand hills are likely to get stuck in the sand. We got stuck once going down a grade and after that, carried two pieces of old carpet to put under the rear wheels to furnish some traction.

We left home about nine o'clock and reached Traverse City at two P.M. It was a thrill to drive down the main street of that city in our Model-T, open air truck. It seems likely that the cops, after seeing our outfit, kept a watchful eye on us. After taking in the sights along Traverse Bay, we decided to put up at the best hotel in the city, which, by the way, did not compare with the Waldorf-Astoria.

After taking in the sights of the city, we started home the following afternoon. Fortunately, we had fair weather during the trip, otherwise we would have been out of luck in our open air car.

The beekeeper can leave his bees for a day, week, or month, to look after themselves, whereas, the dairyman or poultryman has to be on hand to feed his animals, or hire some one to do it for him.

Surplus Cash Dwindling Away

As stated in a previous talk, we were $3500.00 in debt for the bees and supplies, but somehow we did not worry too much. We had faith that our project or venture would turn out well in the end, even though our supply of ready cash dwindled down at times, almost to the vanishing point.

I am reminded of what Russell Kelty of Michigan said at the recent Columbus bee meeting. He had been talking with a beekeeper in Michigan just recently who said that what beekeepers need at present is more faith and Kelty agreed with him. Perhaps a lack of faith is one thing that is the matter with our industry at present. The BOOK says that "Faith is the substance of things hoped for, the evidence of things not seen".

We hoped that our local honey sales would amount to enough to meet our current expenses until our honey crop was sold later on in the fall, and they did.

I recall one day a grocer from Manistee drove up to our place in a small delivery car and said he would buy all the honey we had. He did not know that at that time over five thousand pounds in 60's were stacked up in the

apiary house. One 60-pound can was all he wanted.

A number of people in the neighborhood brought containers to be filled with honey. The first season we charged 50 cents for a quart jar of honey. While the volume of sales was not large, we took in enough cash to remain solvent.

Honey Sales Increase the Second Year

YOU READERS who can remember back to the year 1918 will recall that sugar was rationed at 30 cents a pound, one and a half pounds per person. It was then that we learned to use honey on our breakfast food and toast, also in coffee. My wife used honey for cooking. We banished the sugar bowl from our table.

Naturally, people not being able to buy all the sugar they could use, were looking about for substitutes and that caused the price of honey to advance rapidly. People in our vicinity were asking for honey, even before it was taken off the hives.

One day a man with a milk pail came after some honey. He must have told other people about the honey and where he got it, for in a few days honey customers were coming from all directions.

I had written to a couple of honey buyers and was offered 22½ cents per pound, f.o.b. Copemish, Michigan. Naturally, I had to raise my retail price, which I did, to 25c a pound when the customers furnished their own containers. I really should have been getting around 35 or 40 cents a pound for it but as stated in a previous Talk, I just could not charge the people in that neighborhood such a high price. Some of them would bring a large container and would want perhaps one or two pounds of honey which would about cover the bottom of the container. However, many of them bought the honey in quantity. We had scales for weighing the honey as it was drawn from the tank.

Believe it or not, we took in so much money each week that I hesitated to keep that amount in my pocket or hidden in the house, as I thought some crook might tap me over the head and relieve me of my roll. So I made a special trip to Copemish periodically to deposit the money in a bank for safe keeping. If we had put a classified ad in a local or city paper, advertising the honey, I do believe we could have disposed of the entire crop from the honey house.

In a future talk I'll have more to say about the good price another beekeeper and I received for our honey shipped in a car from Copemish that fall.

JUST NEWS

(Continued from page 297)

large honey producer and comb honey specialist.

In 1901 he won honorable mention at the Pan-American Exposition, at Buffalo, New York, for white clover comb honey. He also was a breeder of Italian leather-colored queens.

He leaves a wife, six children, four grand-children, and a brother.

●

The Annual Meeting of the **Maine State Association of Beekeepers** was held on April 6, at Orono, Maine, in conjunction with the annual Farm and Home Week program at the University of Maine.

The following officers were all re-elected for the coming year; President, Walter M. Holman, Rumford Center; Vice-President, R. B. Swan, Brewer; Sec'y.-Treas., C. A. Stanhope, Bradford; Librarian, James F. Wiggins, Portland; and Extension Editor, Dr. C. O. Dirks Orono. — C. A. Stanhope, Secretary.

●

Oakland County (Michigan) Beekeepers' Association will have its spring meeting at the home of its president Al Bzenko on Sunday, May 16, at 1:30 p.m., 694 Rochester Rd., one-fourth mile south of Rochester. This informal gathering will have a few interesting speakers on topics of current interest such as fumagillin, etc. Bring your smokers for a smoker contest. Games for children. Roasted hot dogs and apple cider.—A. Bzenko, Pres.

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceeding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

IOWA honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

CLOVER extracted honey in sixties. Abram Brubaker, Lancaster, Pa., Rt. 2.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 14, Ohio.

CASH for Beeswax. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED — All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, California.

WRITE FOR shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. Walter T. Kelley Co., Clarkson, Kentucky.

HONEY WANTED for cash. All grades. Good used cans for sale or trade for honey. John Tideswell, 2711 North 63 St., Omaha, Nebraska.

ALL GRADES HONEY AND WAX WANTED—Mail samples, advise quantity and cash prices delivered to us. HONEY SALES COMPANY, 1808 NO. WASHINGTON AVE., MINNEAPOLIS 11, MINN.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

HONEY WANTED, all grades in 60's. Mail samples advise quantity, best price. A. I. Root Company of Syracuse, 1112-14 E. Erie Blvd., Syracuse, N. Y.

WANTED — Honey, all grades. Quote prices and send sample. Write Stoller Honey Farms, Latty, Ohio.

CASH FOR YOUR HONEY—Light extracted or comb. Regular trade send sample. 60-pound cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

HONEY WANTED; Large quantities. All grades. Cash price. Send samples. Finger Lakes Honey Co-op., Groton, N. Y.

WANTED—Light amber-clover and fall-flowers honey. Cloverdale Honey Co., Fredonia, N. Y.

BEST CASH DEAL for your honey (any grade) and beeswax. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

FOR SALE

WRITE FOR CATALOG — Quality Bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

FOR SALE — New heart cypress 10-frame bottom boards. K.D., 10 or more, $1.00 each; 50 or more, 90 cents each; 100 or more, 85 cents each. One nailed up sample postpaid $1.25. Fred L. Poole, Elizabethtown, Rt. 2, Box 67, No. Car.

QUEENBEE PAINTING OUTFITS, $1.50 postpaid. Southwick Apiaries, Waban, Massachusetts.

ELECTRO Filling Machines, users and distributors. Write Stoller Honey Farms, Latty, Ohio.

BEE SUPPLIES—Tin packages; 10 sizes glass jars; paper shipping supplies; window cartons and other items. Roscoe F. Wixson, Dundee, N. Y.

ROBINSON'S "WAVY-WIRED" FOUNDATION—a superior product at a lower price. Also plain foundation. We work your wax and render combs and cappings. The only foundation plant in the East. Robinson's Wax Works, R. D. 3, Auburn, N. Y.

FOR SALE—New ten-frame hive bodies with wired frames, good used bodies, reconditioned; other supplies. 5000 pound honey tank, with stand, prices reasonable. Ray Wilcox, Odessa, N. Y.

FOR SALE—Woodman 4-8 honey Extractor in good condition. $35.00 less motor. Arthur White, 202 Ackerson Lake, Jackson, Michigan.

FOR SALE: Forty shallow extracting supers. Good condition. Alfred (Fred) Briggs, New Sharon, Iowa.

FOR SALE—500 10-frame 6⅝-inch supers with drawn combs. Built on crimp-wired foundation. No disease. Only $2.00 each F.O.B. here. E. E. Salge, 1719 Cranford Dr., Garland, Texas.

NOW AVAILABLE. Fumigil for control of Nosema disease in bees. Write for prices and circular by Abbott's Laboratories. PRAIRIE VIEW HONEY CO., 12303 12th Street, Detroit 6, Michigan.

FOR SALE—Kruse's Super Lifter—bargain, late models. Write for illustration and price. New models available at higher prices. Frode A. Kruse, R. 1, Luck, Wisc.

ROOT SECTIONS. 4¼ x 4¾ x 1⅜. 400 plain. 500 split. Also other items never used. 50 per cent discount on entire lot. Separate items 25 per cent. Walter F. A. Lemke, Drawer 188, Crandon, Wisconsin.

FOR SALE—200 good used honey drums. Also new and used cans. The Hubbard Apiaries, Mfgs. Bee Supplies & Comb Foundation, Onsted, Michigan.

FOR SALE—100 ten-frame hive bodies with frames $1.00 each; 100 8-frame, 75c each, hive bottoms and tops, comb honey supers, shallow extracting supers, 50c each. Large twin-screw wax press and tanks, $10.00, 25,000 plain folding cartons for cut comb or plain 4¼ sections, $1.25 per thousand. H. G. Quirin, Bellevue, O.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

CAUCASIANS. 2-lb. pkg., $3.00; 3-lb. pkg., $4.00. Untested queens, $1.00 each; 100, $75.00. Lewis & Tillery Bee Co., Greenville Ala.

CAUCASIAN bees and queens. Very gentle and good workers. Select queens, 1 to 25, $1.20; 25 up, $1.10. Package bees, 2-lb. with queen, $3.50; 3-lb. with queen, $4.50. Black River Apiaries, Currie, N. C.

GOLDEN ITALIAN bees and queens. Very gentle and real yellow. Select queens, 1 to 25, $1.20; 25 up, $1.10. Package bees, 2-lb. with queen, $3.50; 3-lb., $4.50. Carolina Bee Farm, Graham N. C.

YELLOW ITALIAN BEES. Real producers. Health certificate. Satisfaction guaranteed. 2-lbs. with queen, $3.50; 3-lbs., $4.50; 4-lbs., $5.50; queens, $1.00. Airmail postpaid. O. E. Brown, Route 1, Asheboro, North Carolina.

CAUCASIAN queens, personally raised, very hardy, long lived good honey-gatherers, gentle. Young laying queens, $1.10; 10 or more, $1.00 each. Fred Brock, McDonald, Tenn.

THREE-BANDED ITALIAN bees and queens. Extra good workers and very gentle. Select queens, 1 to 25, $1.20; 25 to 50, $1.10; 50 up, $1.05; 2-lb. with queens, $3.50; 3-lb., $4.50. For the new Dadants 4-way hybrids, add 25 cents per queen or package. Alamance Bee Company Graham, N. Carolina.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

Booking orders now. Over 30 years a shipper. Send for Free Circulars.
BLUE BONNET APIARIES
Weslaco, Texas

J. E. WING & SONS
41 Years Continuous Service
Italian Package Bees
and Queens
Our Specialty
Knights Landing, Calif.

Stop! Look! Order!
Your package bees and selected queens
Good quality Italians
Dependable service
JOE PENCIN
Box 517 Davis, California

HARPER'S FAMOUS
High Quality Italian Queens and Package Bees
PRICES AFTER MAY 5th

Lots of	2-lbs. w/q	3-lbs. w/q
1 to 20	$3.00	$3.75
20 & up	2.80	3.45

QUEENS, BY AIR MAIL.
ANY NUMBER 75c each.
Please write for prices if interested in larger size packages.
PROMPT SERVICE and SATISFACTION GUARANTEED.
CARLUS T. HARPER
New Brockton, Ala.

HONEY LABELS
Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

ATTENTION:

By agreement and co-operation with the Honey Bee Improvement Association we have been supplied stock for drones used in producing queens for

4-WAY ISLAND HYBRID BEES

Do not be misled. Any other Kelley's Island or Island Hybrid queens are not mated to the Island Hybrid Drones to give proper mating to produce 4-way bees.

Bees developed on Kelley's Island have been known for more than a year now as ISLAND HYBRIDS.

Do Not Be Misled.

Prices after May 20th

	4-Way Island Hybrid	Rossman Stock
1-25	$1.25 ea.	$1.00 ea.
26 or more	1.15 ea.	.90 ea.

Package prices, 25 cents each less than present prices.

Rossman Apiaries

P. O. Box 133 Moultrie, Ga.

Caucasian Queens & Package Bees
Young bees, full weight, prompt shipment. Live arrival guaranteed. State health certificate with each shipment.

Our 1954 Prices

Quantity	Queens	2-lb. pkgs. w/qs.	3-lb. pkgs. w/qs.
1-24	$1.25	$3.85	$4.85
25-49	1.15	3.60	4.60
50-99	1.05	3.35	4.35
100-up	1.05	3.25	4.25

Shipments by Express, Parcel post, or Truck.

Howard Weaver
Navasota Texas

Renee Brand **Queens**

1-25 ..... .95 26-up ..... .85

Live delivery guaranteed
Prompt shipment
Queens Air Mailed,
Clipped on request

SILVER HIVES APIARIES
Enterprise, Florida
We do our best to satisfy.

U. S. Savings Bonds come in all sizes . . . . . and grow bigger every year.

AVAILABLE JUNE 1st. Jersey bred queens for bumper crops. $1.00 each. Milton Stricker, R. D. 1, Annandale, N. J.

FOR SALE—6 colonies Italian bees in 10-frame good hives, all on 3-ply wired foundation, $15.00 each. Certificate of inspection furnished. Ship bees from Lake Geneva, Wis., or Chicago, Ill. Emil Tappert, 4055 N. Kenneth Ave., Chicago 41, Illinois.

FOR SALE—84 over-wintered colonies, 86 extra hive bodies, 624 6⅝ extracting supers, 60 comb-honey supers, 30-frame Woodman extractor, Senior Brand capping melter Merry-go-round, Neises clarifier, two-pocket filter, Neises 3500-pound pasteurizer, upright steam boiler, steam uncapping knife. R. W. Barnard, 209 11th Ave., N. W., Mandan, N. Dakota.

FOR SALE—20 swarms bees, 200 half-depth supers. Complete hives for 50 more. All M.D. equipment. 30-frame Woodman extractor. Brand capping melter, tanks etc. All disease free. SCOTT TRAXLER, DANSVILLE, N. Y.

FOR SALE—100 colonies bees; several hundred supers, both extracting and comb honey; modern extracting and rendering equipment. Harold F. Witman, 9 Waugh Ave., Glyndon, Md.

SEEDS

HONEY PLANTS our specialty. Catalog on request. Pellett Gardens, Atlantic, Iowa.

MISCELLANEOUS

Bargains in new or used honey cans or Root Supplies for cash or honey. Buckeye Honey Company, 3930 N. High St., Columbus 14, Ohio.

SECTION COMB HONEY production steps—$1.00. Comb Honey Production Glossary—50c. United Industries, Dept. L, Box 449, Madison 1, Wis.

MAGAZINES

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh Dist. Naini Tal, U. P. India, or available through them. Subs. Rs9/ or 15 shillings or $2.25 yearly. Sample copy post free for Rs 1/8/, or s 2/6, or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

ARCHIVE OF BEE SCIENCE (Archive fur Bienenkunde), oldest scientific, independent bee journal in the world. Select feature material gives lasting theoretical and practical knowledge. Sample copies available. Two large 1953 editions for the low price of DM 5.50. Biene-Verlag (Bee Publishers), Lindau (B), Postcheck Karlsruhe 5581, Germany.

BEE WORLD, the international journal of the Bee Research Association, published monthly, contains the latest research reports on bees and beekeeping. With Apicultural Abstracts it costs $3.00 per annum. Apicultural Abstracts only $1.75 per annum, from the Hon. Subscription Secretary, Bee Research Association 10 Barnett ood Lane, ASHTEAD, Surrey, England.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

JENSEN says:

You won't get stung buying **JENSEN'S BEES** and **QUEENS** Don't kid yourself into thinking all southern bees and queens are of like quality regardless of price. Demand for our stock is growing by leaps and bounds; there must be reasons for it.

Our unique Queen Carrier is catching on like "wild-fire" and large buyers are exultant in their acceptance of it. Queens reach destination full of Vim, Vigor, and Vitality, ready to go to laying quickly after liberation, and supersedures are rare. Introduction is simplified, one or more queens may be taken out at a time as needed and the rest remain in care of plenty of bees.

Prices: For/or with "Magnolia State" Italian Queens

	Queens	2-lb. pkgs. w/q	3-lb. pkgs. w/q
1-24	$1.25	$3.75	$4.75
25-99	1.15	3.50	4.50
100-999	1.05	3.25	4.25
1000-up	1.00	Truck loadings by pre-arrangement.	

Reg. U.S. Pat. Off.

For Dadant's Improved "Starline" 4-way Hybrid Queens in packages, or individually, add 25 cents to each item. Clipped and marked FREE. For 50 queens in Special Carrier and 2½ pounds of bees add $2.50, 100 queens same, and 4 pounds of bees add $4.00. Carriers remain our property and prompt return when empty is requested. Return postage guaranteed by us.

For speed use Western Union or Telephone 131 J.

JENSEN'S APIARIES MACON, MISS. U. S. A.

PACKAGE BEES, QUEENS

Gentle, Dependable Italian Stock
Parcel post shipment
from
Rutledge, Alabama

Selected queens, painted and clipped if wanted.

2-lb. w/q	$3.25	Wt. 6 lb.	
3-lb. w/q	4.10	Wt. 7 lb.	
4-lb. w/q	5.00	Wt. 9 lb.	
5-lb. w/q	6.00	Wt. 11 lb.	

10 pkgs. 5% less; 25 pkgs. 10% less Postage extra. No disease, prompt shipment.

DRAYTON TALLEY
Auburn, Ala.

THREE-BANDED ITALIAN BEES AND QUEENS

Liberal overweight packages. Baby bees. Young mated queens with each package. Postage or express. For postage allow six pounds for a two-pound package; eight pounds for a three-pound package; and 20 cents extra for special handling. Shipping begins April 1st.

	Queens	2-lb. w/q	3-lb. w/q
1-24	$1.00	$2.85	$3.85
25-99	.90	2.75	3.75
100-up	.75	2.60	3.60

For queenless package, deduct price of queen. Live delivery guaranteed. Book early in order to get dates wanted.

LUCEDALE APIARIES
Lucedale, Mississippi

Italian Queens
EUGENE WALKER
Rt. 2, Box 207
Live Oak, California

QUEENS
Air Mailed at No Extra Cost
Prices:

May 1st to June 1st	60c
June 1st On	55c

E. J. Bordelon Apiaries
Box 33 Moreauville, La. Ph: 2415

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription $1.00. Hotel Cactus, San Angelo Texas.

U. S. Savings Bonds come in all sizes . . . . . and grow bigger every year.

GENTLE AND PRODUCTIVE

Italian and Caucasian package bees and queens. Full weight, health certificate, and live arrival guaranteed. Send your requirements now.

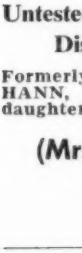
Prices:	1-24	25-50	100-up
2-lb. w/q	$3.00	$2.90	$2.85
3-lb. w/q	3.90	3.80	3.75
4-lb. w/q	4.85	4.75	4.65
5-lb. w/q	5.75	5.65	5.40
Queens	1.00	.95	.90

Prices after May 15th

	1-24	25-50	100-up
2-lb. w/q	$2.75	$2.65	$2.60
3-lb. w/q	3.60	3.50	3.40
4-lb. w/q	4.45	4.30	4.15
5-lb. w/q	5.25	5.15	5.00
Queens	.90	.85	.75

Farris Homan
Shannon, Miss.

Package Bees & Queens
Quality & Service
C. F. KOEHNEN & SONS
Glenn, California



CAUCASIANS
CARNIOLANS

Hardy, prolific, rapid build-up, finest of all workers, GENTLEST OF ALL RACES; which saves time, sweat, patience and work, safest in towns, near neighbors and highways.

Untested Queens .....$1.20 Air Mail
Discount on quantity orders.

Formerly the Apiary of ALBERT G. HANN, now being carried on by his daughter and partner.

(Mrs.) Catherine H. Struble
Dick Houston
Glen Gardner, N. J.

U. S. Savings Bonds come in all sizes . . . . . and grow bigger every year.

BETTER DRIVEWAYS TO YOUR ROADSIDE STAND

(Continued from page 271)

quantities of about two pounds per square yard.

Drainage is another important point to consider when building a driveway. A good driveway is crowned so that water is carried off to the sides before it can soak into the roadbed. This crown may be maintained on a dirt driveway with a tractor with blade attachment.

If you cannot have ditches on either side of the driveway to carry away the water, lay open-jointed tile or perforated pipe in trenches and fill the trenches with porous material.

Every effort should be made to prevent water from running onto the highway at the driveway entrance. If you have a culvert under the driveway entrance, be sure it is large enough and is kept clean and free of clogging materials. If the grade is at all steep at the entrance, the culvert should have a grated top to intercept any water that might run down the grade. Here again, a gentle grade is more desirable. Any eroded materials that have been carried down the driveway by water should be cleared away.

Checking all five aspects of your driveway may indicate only routine spring cleanup work, or it may indicate more satisfactory service is possible by relocating the driveway to a more favorable slope, where it can be straighter or provide better sight distance. But whatever repairs are needed, remember that a good driveway pays off through the years in convenience and in time saved.

* * *

Queens
May **ITALIANS** June
Top Quality
$1.00 each

Sam E. Moore
Rt. 1, Box 620
Anderson, Calif.
Phone: 147W3 Redding

SAFEGUARD BEES DURING ORCHARD SPRAYING

(Continued from page 267)

possible insecticide treatments provide the needed pest control.

(5) Using cover crops such as alfalfa, vetch, or other plants which will not bloom continuously after being cut, rather than sweet clovers which bloom more or less continuously.

(6) Cutting, disking or otherwise eliminating the bloom from cover crops before applying insecticidal sprays. This practice now is becoming even more important, because many orchardists also spray under cover plants to aid in mite control.

(7) Notifying nearby beekeepers at least two days before making extensive use of parathion or other organic phosphates, arsenicals, DDT, lindane, benzine hexachloride or other insecticidal spray or dust materials in case any fruit blossoms or undercover blooms are present. Beekeepers then may move their bees to a safe location before large-scale agricultural chemical applications are made.

(8) Keeping berry patches, tomato fields and gardens free from weeds. When weeds are in blossom, poisonous spray and dust materials will collect on them and increase risk of poisoning bees.

(9) Applying dusts and finely-atomized sprays at a time when the air is relatively still. This will reduce drift of such poisonous dusts and sprays to plants being worked by the bees.

(10) Spraying and dusting orchards and crops intelligently. Do not apply more chemicals, more treatments, or weaker or stronger dosages than are necessary to secure effective insect and plant disease control.

(11) Storing and handling all poisonous agricultural chemicals in a manner safe to persons, livestock, bees and wildlife.

(12) Reading and following the safety precautions listed on the manufacturer's insecticide container.

●

Healthy Italian Bees & Queens
Write for 1954 Prices
Georgia Bee & Honey Apiaries
P. O. Box 312 Hortense, Ga.

QUALITY BRED ITALIAN QUEENS

March 10 to June 1 $1.00 each
June 1 to Nov. 1 .50 each

All queens shipped Air Mail and guaranteed to please.

Walter D. Leverette Apiaries
Fort Pierce, Box 364, Florida

ITALIAN QUEENS
75c each, Airmail
No Packages
O. K. Anderson & Son
P.O. Box 193 Coffee Springs, Ala.

QUEENS — QUEENS
ITALIANS

	1-24	25-99	100-up
2-lb. pkg. w/q.	$3.00	$2.90	$2.85
3-lb. pkg. w/q.	4.00	3.90	3.85
Nice large qns.	.95	.90	.85

For fumagillin fed queens, add 15c.

All queens are personally reared. Health certificate with shipment.
Send us your order of 1 or 1000.

Mitchell's Apiaries
Bunkie, La.

QUALITY BEES DEPENDABLE SERVICE

NOW READY. Send us your rush orders, for full weight, safe arrival, health certificate, and satisfaction. 33 years as shippers.

— PRICES —	1-24	25-100
2-lb. pkg. with queen,	$3.00	$2.75
3-lb. pkg. with queen,	3.75	3.50
Untested queens	1.00	.90
Tested queens	2.00	1.75

Package bees are shipped express F.O.B. If wanted shipped parcel post, add postage. On small orders, parcel post is cheaper.

NORMAN BROS. APIARIES
RAMER, ALA.

27 YEARS A SHIPPER * * QUALITY AND SERVICE

5 EXPERIENCED MEN ON THE JOB 52 WEEKS A YEAR.
All have been connected with us 4 years or longer.
Lots of experience in loading trucks.

DARK ITALIANS AND ISLAND HYBRIDS

	Queens	2-lb. pkgs. w/qs.	3-lb. pkg. w/qs.
1 to 24	$1.20	$3.75	$4.75
25 to 99	1.10	3.50	4.50
100	1.05	3.25	4.25

For marked ISLAND HYBRID queens, add 10c
For truck loads, write. Book your order early. No deposit required.

WEAVER APIARIES Navasota, Texas

ITALIAN BEES AND QUEENS

2-lb. package with queen $2.75
3-lb. package with queen 3.50
Extra queens ..... .80

We guarantee prompt shipment, safe delivery and complete satisfaction. Health certificate with each shipment.

BAYOU BEE CO.
Rt. 1, Box 49 Montegut, La.

ITALIAN BEES

2-lb. and queen, ...$2.75
3-lb. and queen, ... 3.50
25c off on 100 or more
Prompt shipment, baby bees.
A. J. HOOK, Eutaw, Ala.

SULLIVAN'S ITALIANS
Effective May 15 These Prices:
2-lb. pkg. with queen .....$2.25 each
3-lb. pkg. with queen ..... 3.00 each
Queens ..... .65 each
Live delivery and satisfaction guaranteed.

SULLIVAN'S APIARIES
Gilbertown Ala.

WILLIAMS' ITALIAN QUEENS
LARGE LEATHER COLORED
THREE-BANDED
QUALITY SUPREME
CERTIFICATE WITH EACH SHIPMENT

1 - 9	Postpaid	$0.85
10 -99	" "	.75
100-up	" "	.70

Air Mail Extra

DR. WILLIAMS APIARIES
115 W. Sterling Ave. Baytown, Texas

1954 QUEEN BEES

3-Banded Italians

1-9 ..... $1.10 each
10 or more ..... 1.00 each

Geo. W. Moore
Shasta, Shasta Co., California

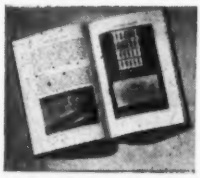
If you are taking time to read, why not read the best? Condensed to save you time. Illustrated to give you pleasure.

Modern Beekeeping
The Picture Bee Magazine
Box 210 Clarkson, Kentucky

ITALIAN BEES and QUEENS

	1-11 pks.	12 or more
2-lbs. bees with queen	$3.25 ea.	$3.00 ea.
3-lbs. bees with queen	4.25 ea.	4.00 ea.

GIRARDEAU APIARIES
Tifton, Georgia



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Here is the chance for you to get all of the secrets of successful comb honey production from one of America's leading comb honey producers, Carl E. Killion. "Honey in the Comb" by Mr. Killion will save you costly mistakes and show you time-saving ways of handling comb honey—from the hive to the customer.

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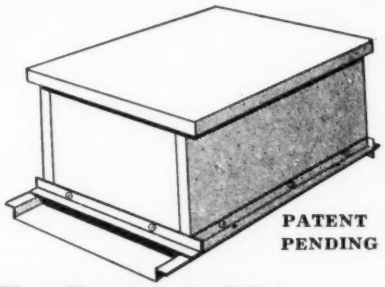
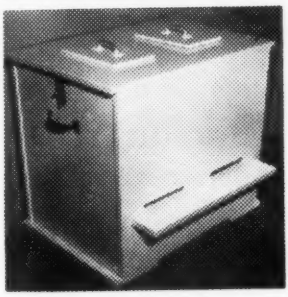


PATENT PENDING

Hapeville, Georgia, U.S.A.



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5-lb. pkg.	5.50	5.35	5.15

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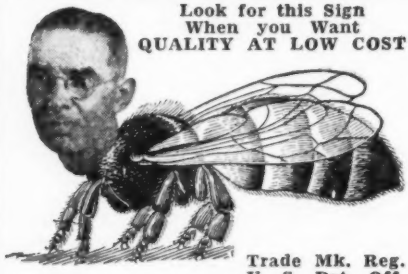

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Each	$1.10 air mail	$3.50	$4.50

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100-up, each	2.80	3.50	4.25	5.00

Tested Queens $2.00 each Untested Queens $1.00 each

For introduced queens, add $1.00 per package. If queenless bees are wanted, deduct $1.00 from the price of each package.

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3-BANDED ITALIAN BEES AND QUEENS

Shipped anywhere in U. S. and Canada — PREPAID

	1-24	25-99	100-up
2-lb. pkg. w/q	$4.00	$3.75	$3.50
3-lb. pkg. w/q	5.00	4.70	4.40
4-lb. pkg. w/q	6.00	5.65	5.30
5-lb. pkg. w/q	7.00	6.60	6.20
QUEENS	1.10	1.00	.95

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INSURE your honey crop with DEPENDABLE BERRY Bees

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Fill those vacant and weak hives with Berry's Producing swarms. We ship annually thousands of packages and queens. We have ABSOLUTELY NO COMPLAINTS relative to NOSEMA. Having a large number of branch apiaries located in the North Central Western States gives us an excellent opportunity to test our unsurpassed strain for not only honey production, but also for diseases and climatic working ability. In our CUSTOMER'S opinions as well as our own, our strain of Italian bees is unsurpassed by any type or kind of bee known, whether hybrid or otherwise. Fifty-nine years of **SELECTIVE BREEDING COUNTS.**

Package Bees with Queens and Individual Queens
(Prices after May 10th)

Quantity	Queens	2-lb. pkg.	3-lb. pkg.	4-lb. pkg.	5-lb. pkg.
1 -24	$1.00	$2.75	$3.75	$4.75	$5.75
25 -99	.90	2.65	3.65	4.65	5.65
100-up	.85	2.55	3.55	4.55	5.55

(For Queenless or Booster Packages deduct price of queen)

All our queens in our packages, or individual queen orders, are SELECT QUALITY. The culls we DESTROY. Only queens we would use in our own apiaries do we cage for shipment. Queens' wings clipped FREE OF CHARGE on request. Safe arrival and satisfaction we guarantee on everything we ship, whether packages or queens. All orders filled PROMPTLY. We have NO DISEASE. A HEALTH CERTIFICATE and directions telling how to handle accompany all shipments.

References. The Union Bank & Trust Co., or First National Bank, Montgomery, Alabama. Any bee journal in the U. S. or Canada. Remember: Thousands of strong colonies and thousands of queen yard nuclei enable us to give you PROMPT and DEPENDABLE SERVICE.

CAUTION: We are not to be confused or compared in any way with the many part-time, unreliable, small beekeepers who are classing themselves as dependable shippers.

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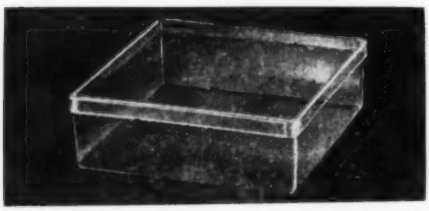

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DISEASES AND ENEMIES OF BEES

(Continued from page 270)

taining the dead brood are punctured by the bees. The head of the dead larva points towards the top of the cell. At first the color of the dead larva is white to whitish gray. It gradually changes to a dark brown. The larva is easily removed intact from the cell in the whitish-gray stage and resembles a sack of water at this time.

The scales of this disease are dark brown to black and easily removed from the cell. The turning up of the head and the whitish-gray sack are the two most distinctive characteristics of sacbrood.

Treatment

Sacbrood is prevalent in many colonies in the spring, but it usually will lessen in intensity in the summer. It normally disappears without treatment. Strong vigorous colonies are more effective in controlling this disease than weak colonies.

(to be concluded)